

The Overseas Motorcycle.



Motor Cycling

No. 425. VOL. XVII
TUESDAY, 1ST JAN., 1918.
Registered at the G.P.O. as a Newspaper



O our gallant men
on all Fronts and
all Seas at Home
and Abroad, we
extend our Greetings. . . .
May God speed your work
and send you safely back to
your homelands. . . .

Douglas

THE CLYNO COMMENTATOR

A Magazine of to-morrow foreshadowed to-day in a series of press announcements of which this is one

Motor Cycling Issue. No. 7. January 1st.

The Future.

It's just as well we could not lift the veil these last three years—it's just as well we did not know the cloud would hang over us so long. Hope is a great incentive to endeavour, and endeavour is the only means by which we can win the War and ensure our rightful place in the Commerce of the World.

• • •
Of course, these days, we work for one result alone, but—we are ever anticipating.

• • •
For ourselves, we have always kept in mind the strength of our commercial proposition, and are assured that our present experience and endeavour will, in the future, as greatly facilitate the rapid materialization of our hopes as they have the concentration of our efforts during these last three years, hence—

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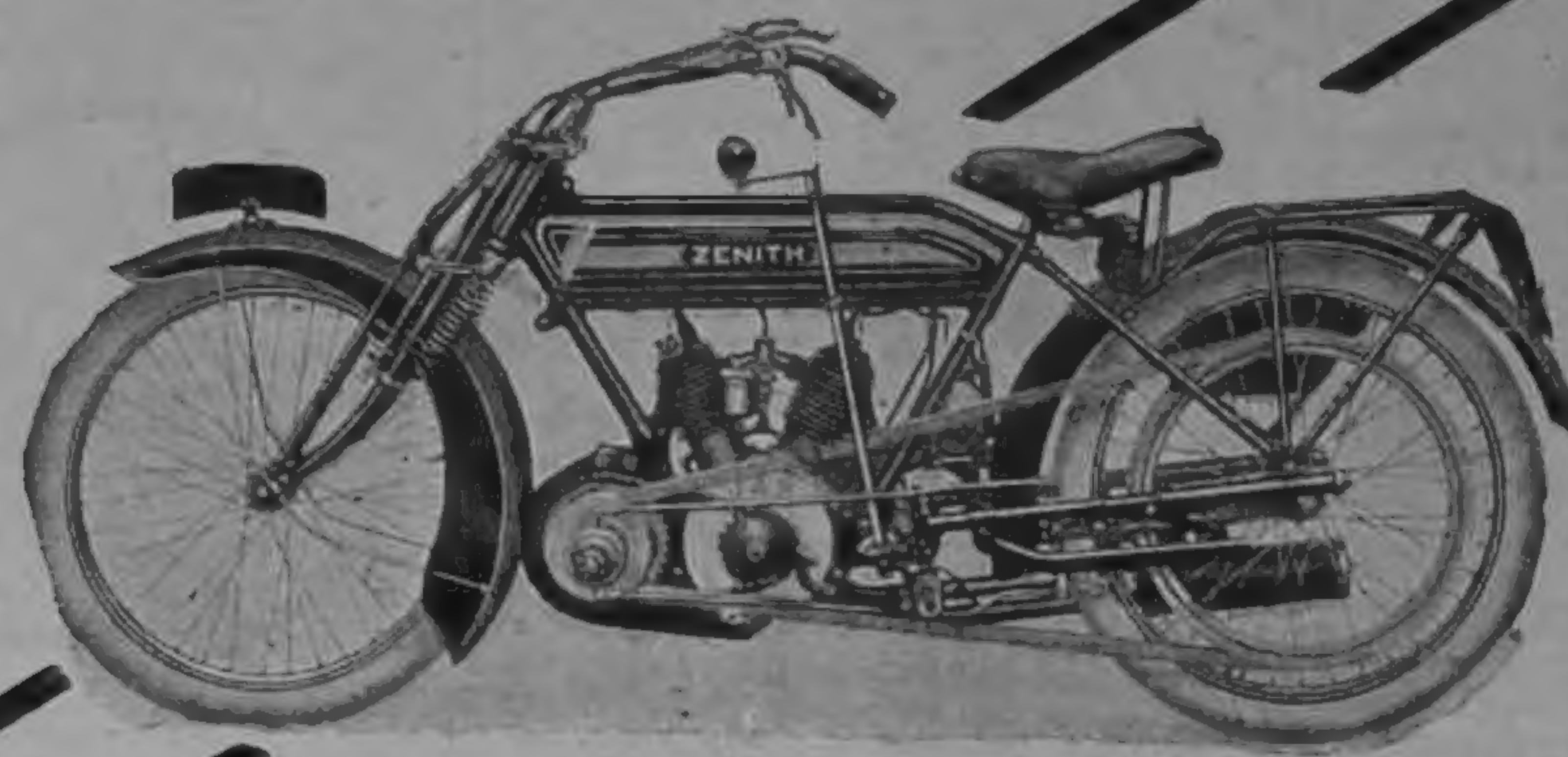
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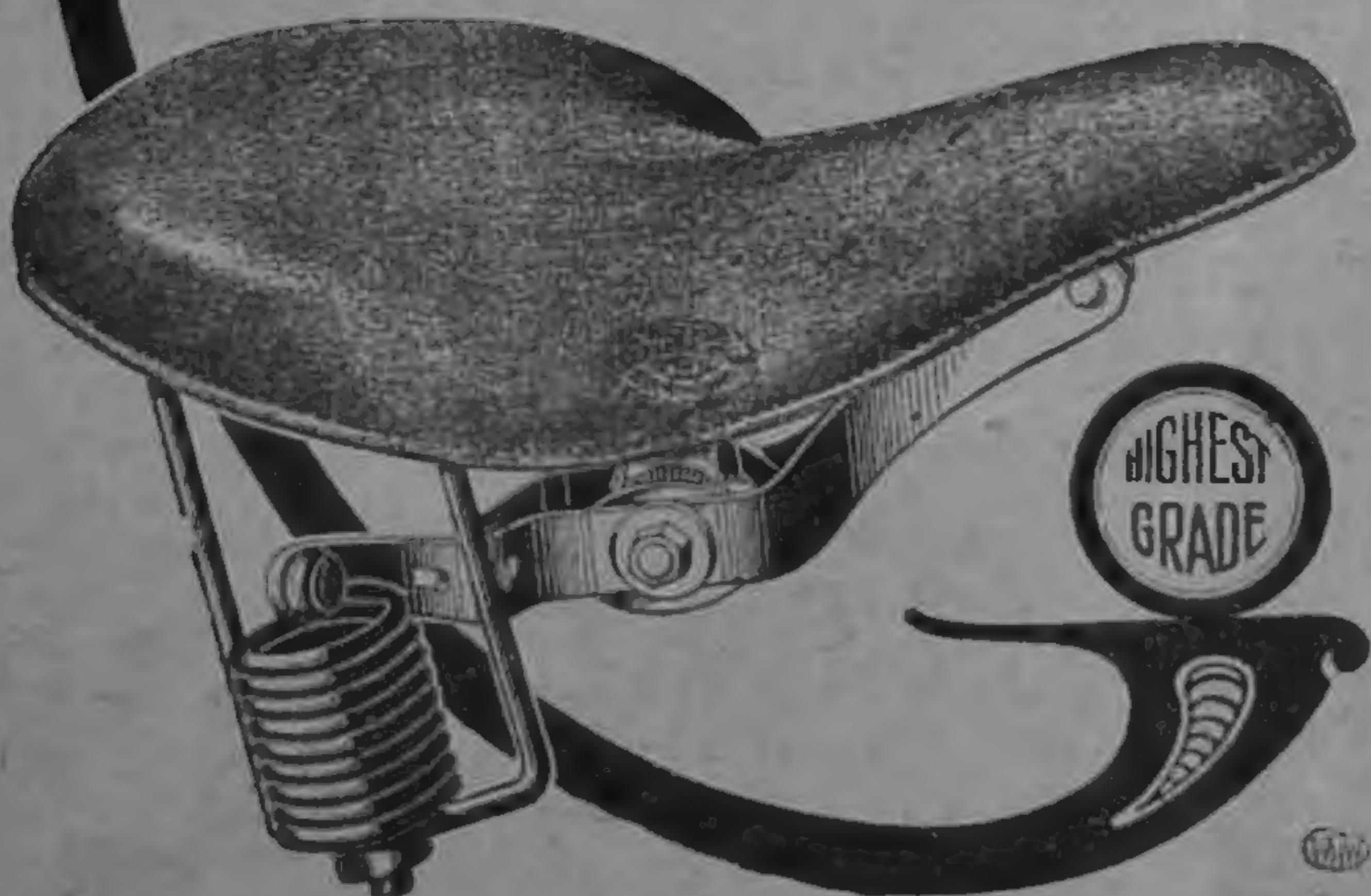
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MotorCycling

A Newspaper for Motorcyclists only

Edited, Written, and Illustrated
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A STAFF OF
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THE MOTORCYCLIST PIGEON SERVICE



The photograph depicts a Canadian despatch rider starting out for the trenches with a basket loaded with carrier pigeons on his back. This wonderful combination of despatch rider and carrier pigeon has saved many lives.

(Canadian War Records.)

EDITORIAL

Recognition of the First D.R.s.

WE think that many readers, in the Services or otherwise, will agree with the suggestion put forward by "The A.P.M." in our last issue that some form of recognition should be accorded to despatch riders who enlisted in the first few days of the war. Those were stirring times indeed, when, immediately after the declaration of war between this country and Germany, some of the best-known motorcyclists threw up every home tie and enlisted forthwith for service abroad. For the most part hastily equipped, and without preliminary training, they were sent out to France at once, and there played their part in the historic retreat from Mons, rendering incalculable services in the maintenance of communications between the rearguard and an army in orderly but full retreat. Only those riders who lived through those days can appreciate the horror, the anxiety and suspense; and even when the retreat was terminated by the Battle of the Marne the arduous character of their duties was not lightened. All these men, it is true, have earned "The Star of Mons," but it seems to us that some special recognition should be accorded to this little band of motorecyclists. From the survivors, and from all those motorecyclists who were engaged in France in the thrilling days of August and September, 1914, we should be glad to hear, so that their names can be inscribed upon a special Roll of Honour.

Coal-gas Controlled.

THE use of coal-gas in motor vehicles is to be controlled, or, more correctly, the manufacture and fitting of gas equipments is to be curtailed. This is a notable triumph for those interests which are opposed to motoring qua motoring, and the slenderness of the pretext upon which the Motor Spirit Restriction Order is to be amended so as to bring coal-gas within its provisions, as announced by the Board of Trade last week, is sufficient commentary upon the motives that have inspired this action. It is given as "the urgent necessity of reducing to the absolute minimum the expenditure of labour and materials for other than war purposes." The intention is to provide that where gas is available it shall be used only for essential needs in substitution for petrol. It is not proposed to license the quantity of gas that can be purchased, while it is recognized, states the announcement, "that a certain number of vehicles have already been fitted with gas, and wherever possible permission will be granted in those cases to enable such vehicles to be used for essential purposes as indicated by the Motor Restriction Order." It will be recalled that the recent attacks upon motorists who have converted their vehicles to run on coal-gas, put forward the plausible reason that a large amount of labour was being devoted to the "very unnecessary purpose" of the manufacture of gas containers. We have no hope that our motoring associations,

from the luke-warm interest which they have displayed in motoring since the war began, will make vigorous and united representations to remedy the injustice which is threatened. We have no doubt that the Order will be amended so as to prohibit the use of a car or motorcycle of any description, whatever the fuel upon which it is run, except for the purposes set out in the Motor Spirit Restriction Order.

Throttling a Great Home Fuel.

THE limitation in the use of coal-gas in districts which are short of supplies we could understand, and that is a matter which is very easily controlled by the gas undertakings. We have also anticipated for some time that, in view of the great scarcity of petrol, steps would be taken to encourage the use of coal-gas in substitution for motor spirit. That the free development of the use of this new fuel should be so violently discouraged by the drastic and arbitrary regulation such as it is now proposed to issue was not to be anticipated. We hope that it is not to be left solely to the motoring papers to issue the protest for which this action calls. The extended use of coal-gas is a great post-war development which should be assisted in every possible way. Its expansion, however, is only possible by the absence of arbitrary restrictions at the present moment. We regard this post-war development as of such importance to the nation that we are not going to be discouraged in our efforts to expand it. We think, furthermore, that the Board of Trade is quite willing to admit, as its announcement indicates, that the use of coal-gas instead of petrol, where licensed, is preferable, and we should not be surprised if, in the future, it may become necessary to cut off supplies of motor spirit entirely, which will leave no alternative but coal-gas. It will thus depend upon those who are compelled to use their vehicles, and have the right to do so, whether the use of coal-gas as an alternative fuel to petrol makes further headway. Sufficient has been done to indicate its possibilities. There is scope, however, for careful experimenting, which we are afraid will not receive any sanction. This, and, in fact, all steps that are taken to develop the use of coal-gas, such as the demonstration and other tests which we are organizing, should receive the sympathetic consideration of the Board of Trade.

"MOTOR CYCLING" RAISED TO 2^d.

With the issue of 15th January the price of MOTOR CYCLING will be raised to 2d. The reasons for this change were explained in our last issue, and are due to the enormous increase in the cost of all printing materials, which makes the production of an adequate journal at 1d. impossible. The issue of MOTOR CYCLING for the 15th January will contain an increase in the pages of reading matter and illustrations.

The new subscription rate will be as follows:-

	U.K.	Abroad.
One year ...	11s. 0d.	13s. 0d.
Six months ...	6s. 6d.	8s. 6d.
Three months ...	2s. 9d.	3s. 3d.

The Ideal Overseas Motorcycle



The photograph shows a typical New Zealand road.

What is Required on Machines which are Exported Abroad.

By A NEW ZEALANDER.

MOTORCYCLISTS who have never ridden on road surfaces other than those to be found in the British Isles cannot realize what road conditions can be encountered on an average run in, say, New Zealand, of 150 miles. If they had done so before the war, perhaps a machine would have been designed which, whilst being of an essentially Colonial type, would have proved invaluable on the numerous battle fronts. Having ridden several thousands of miles on various machines—singles, and twins, V and horizontally-opposed—I suggest the following as an ideal specification, the various points of which have been carefully thought out as a result of my experience in New Zealand. To obtain an idea of the kind of road met with out there, imagine a track running along a dried-up river bed for perhaps seven or eight miles; the way is strewn with boulders, ruts, and at times sandy drifts intersected by shallow, swift-running streams. This is by no means an exaggeration, but will, I trust, show the reader that the improvements enumerated are necessary.

Spring Frames and a Large Ground Clearance Are an Absolute Necessity.

Structural alteration comes first in my specification. The need for spring frames is obvious, even in England, and they are all the more necessary in a country where roads such as that described are met with on any average day's run, and jolts and bumps assail one every few yards on a non-spring machine. Clearance is a most necessary factor, and the crank-case should be at the very least 8 ins. from the ground, or serious damage will result when the machine strikes a boulder, or a protruding tree root on a bush track; not an uncommon occurrence. The engine must be at least 4 h.p., and preferably a twin-cylinder with side-by-side valves. The cylinders should be readily de-

tachable without the whole power unit having to be removed from the frame, as has to be done on several current models. On the single-figure gradients often met with on the hills, one would be at a decided disadvantage on a lesser-powered mount, and the same remarks apply to traversing a difficult stretch, as the weight of the machine tends to keep it from bounding. The oiling system should be mechanical, and incorporated integrally in the engine, with a sump of sufficient capacity for a 200-mile run.

Chain drive should be fitted as standard on all models, both chains running in quickly-detachable cases, and a supply of lubricant given by means of a separate pipe and leads from the oil tank. Belt drive is of very little use, as slip, after passing through a watersplash, prevents the belt from gripping the flanges of the pulley. This nuisance often causes waste of valuable time in drying the belt to enable one to proceed, as I know to my cost, having encountered 13 of these watersplashes on one run of 40 miles, some of them 2 ft. in depth.

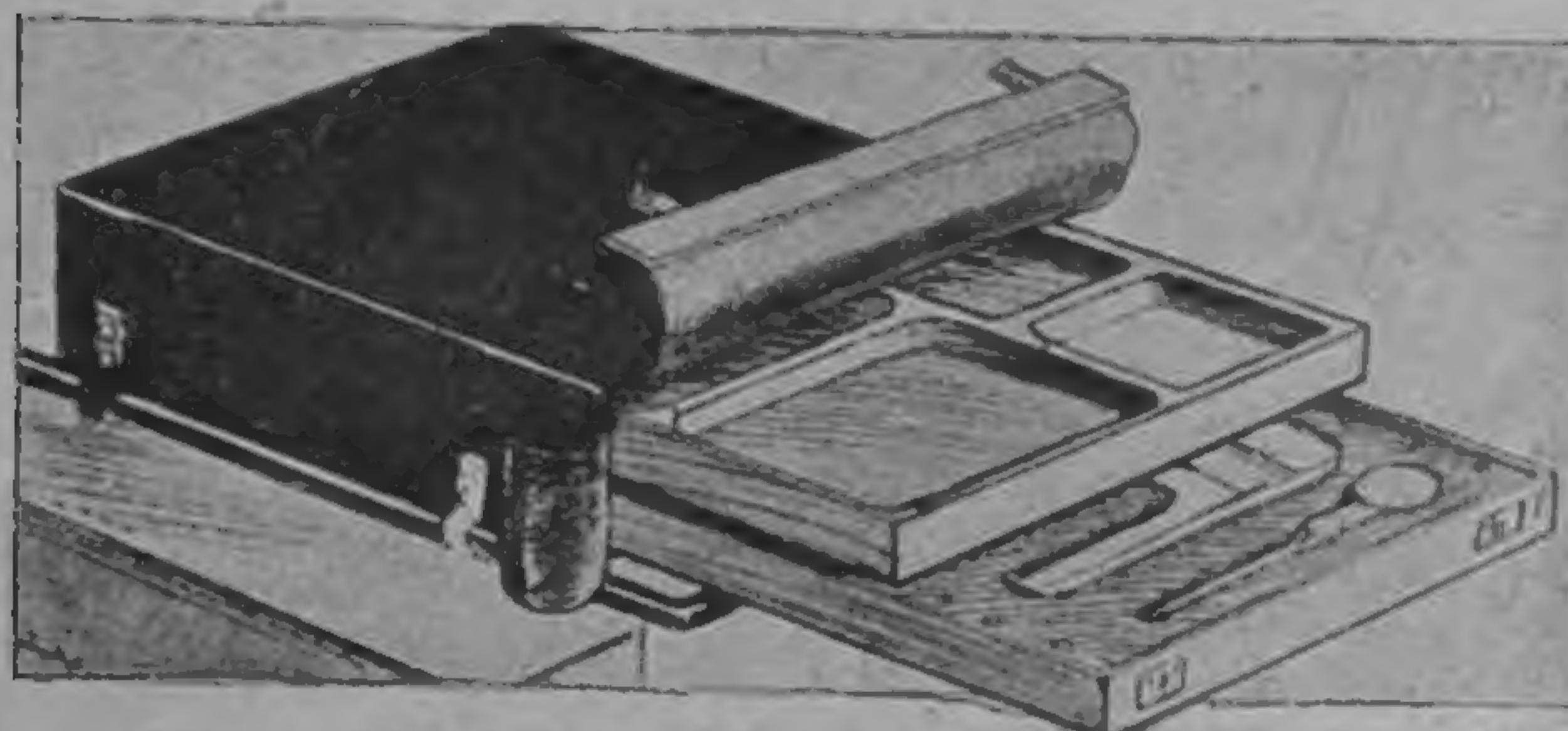
The Gear Ratios Required for Overseas Use—Larger Tanks.

Three gears are sufficient, with ratios of 5 to 1 top, 8 to 1 middle, and an emergency one of 12 to 1, which would rarely be used solo. The oil filler cap needs to be made larger in diameter to obviate the tedious process of filling the gearbox with a gun pump. Vast improvement is needed as regards tank capacity. The petrol tank should hold at least 2½ gallons, as garages are few and far between, and the oil tank capacity should be increased to ½ gallon. The filler caps of both compartments should be made secure so that they cannot be lost by jolting, and they could to advantage be made wider in diameter.

The grievance with regard to mudguards is that

The Ideal Overseas Machine (contd.).

they do not by any means fulfil the purpose for which they were designed. They should be made well domed and very wide, with sufficient clearance between them and the tyres. On clayey ground in inclement weather it is no joke to have to dismount and detach the wheels in order to clear out the accumulation of mud oozing from behind the side valances, which prevent the insertion of any blunt instrument to remove the obstruction. The front rim brake is useless in the Colonies, and is discarded by most riders as dangerous, because objects may catch between the brake blocks and the rim and throw the rider. As well as this, a dent in the rim soon puts it out of gear. The rear brake should be of the internal-expanding type, with a good bearing surface operating on a drum fixed to the wheel hub. Preferably the brake shoes should be faced with a heat-resisting fabric such as Ferodo, in order to obtain a smooth braking action.



A suggested design for a toolbox for the overseas machine.

The wheels should be interchangeable in order to economise tyre wear as much as possible and to facilitate the repairing and changing of tubes. The rims should be 26 ins. in diameter. Rims are often found badly dented after a run owing to contact with boulders, etc. They need to be of stronger section to withstand the terrific strain induced by the atrocious road surfaces, for it is common to find loose shingle from the nearest river bed, for instance, tipped and left unrolled for several hundred yards, and this right across the full width of the road. The spokes require to be made of stronger gauge, and should either be enamelled black or made of unrustable material.

Oversize Tyres Are Required as Well as Semi-T.T. Bars.

The more the tyres are oversize the better for comfort, and they will also last longer. There should be at least one security bolt in each rim opposite the valve. This inexpensive fitment would tend to prevent the tyres creeping, and would obviate many annoying bursts, usually due to the valve being torn from its seating.

With regard to handlebars, wide bars of semi-Tourist Trophy type are to be preferred, as they are conducive to steadier steering, a necessary factor in mud to avoid skidding. At speed they give one a greater feeling of confidence than would be the case if tourist bars were fitted, and it would also be better if they were adjustable for angle. Footrests should be placed to give a variety of riding positions and be easily adjustable. Two pairs should be fitted, as on a long ride it is a great relief to change the position from one pair to the other.

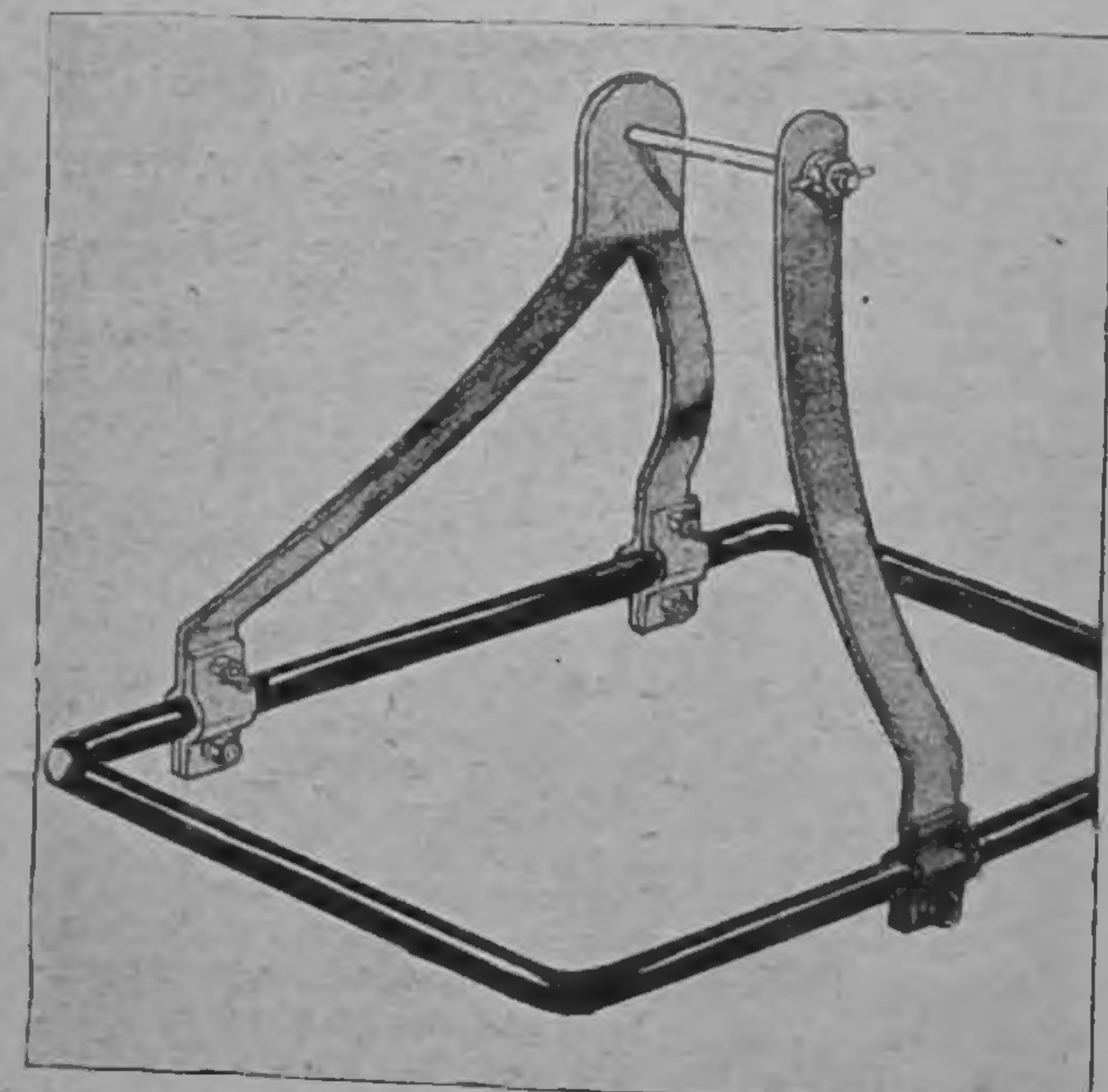
Both wheels must have stands, the front one supported by a strong wing-nut clip well clear of the ground, the rear one to be of a spring-up pattern. Nothing is more annoying to a rider than to have to dismount to fasten a trailing stand, a far too common happening. The clips at present attached to machines seem more suitable for the adornment of a

gentleman's tie than for the purpose for which they were made. What looks more unsightly than to see a stand attached to the clip by sundry lengths of wire in festoons round it? A clutch of the cork inset variety has given me every satisfaction. This should be controlled by means of a Bowden cable attached to a lever on the handlebar. This convenience is appreciated most when one is endeavouring to pass in a cloud of dust a mob of several thousand head of sheep on their way to the freezing works. When both legs must be stretched out to maintain a precarious balance, it is hopeless to endeavour to disengage the clutch with the foot at the same time.

The Position of the Magneto and a Well-designed Toolbox.

That delicate instrument, the magneto, requires to be built well up in the frame, preferably at the back of the rear cylinder on the gearbox position. After fording a stream, one may often have to spend time tinkering with the magneto, owing to water having percolated into its mechanism. The drive from the engine should be by gear wheels.

The tool case is a very valuable adjunct to the machine, but on present models is, I consider, far too small. My ideal is a sensibly designed box, to be clamped on to the carrier with two drawers as receptacles for tools and sundry spares, thus doing away with the absurdly small panniers. One drawer ought to have suitable felt-lined spaces, countersunk to obviate the rattle of tools, each of which would have its own place; thus the owner could see at once if a tool were missing after a roadside repair. The other drawer would accommodate the numerous spares re-



A good strong spare wheel carrier is demanded by overseas motorcyclists.

quired for a journey. The box need not be very deep— $2\frac{1}{2}$ ins. at the most—and it could be iron-bound as the panniers are at present, but strong enough for any load which might be carried upon it. The pannier bags could be utilized for carrying spare tubes, if these were well wrapped up to prevent friction. Last in my criticism, and last on the machine, comes the carrier. This should be made of stronger tubing and better supported, as the tubes snap very easily when a heavy load is carried.

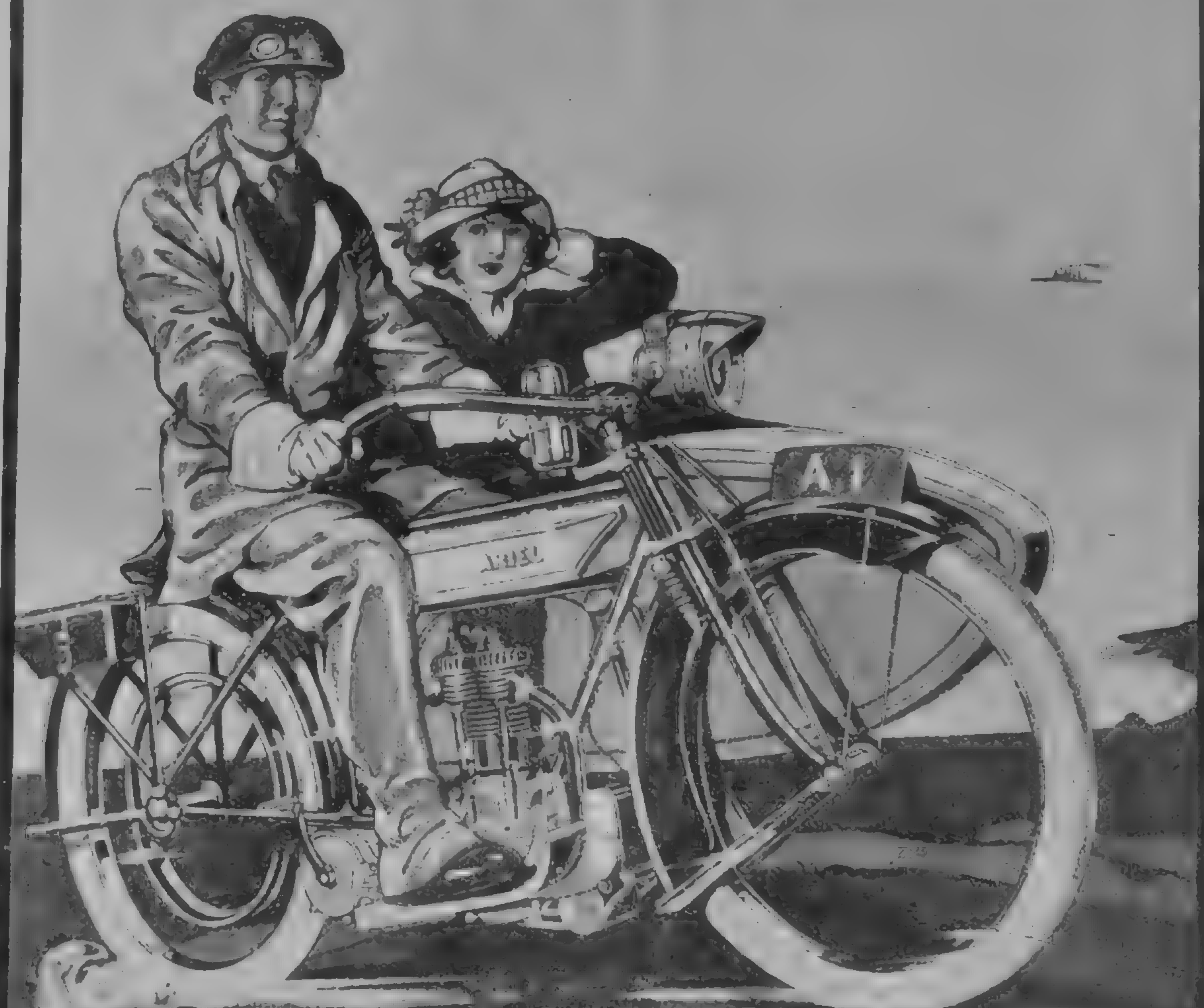
Shall I have my wish gratified in the near future? I trust my ideal machine will not be a phantom but a stern reality.

1st January, 1912.

MOTOR CYCLING.

3

ARIEL



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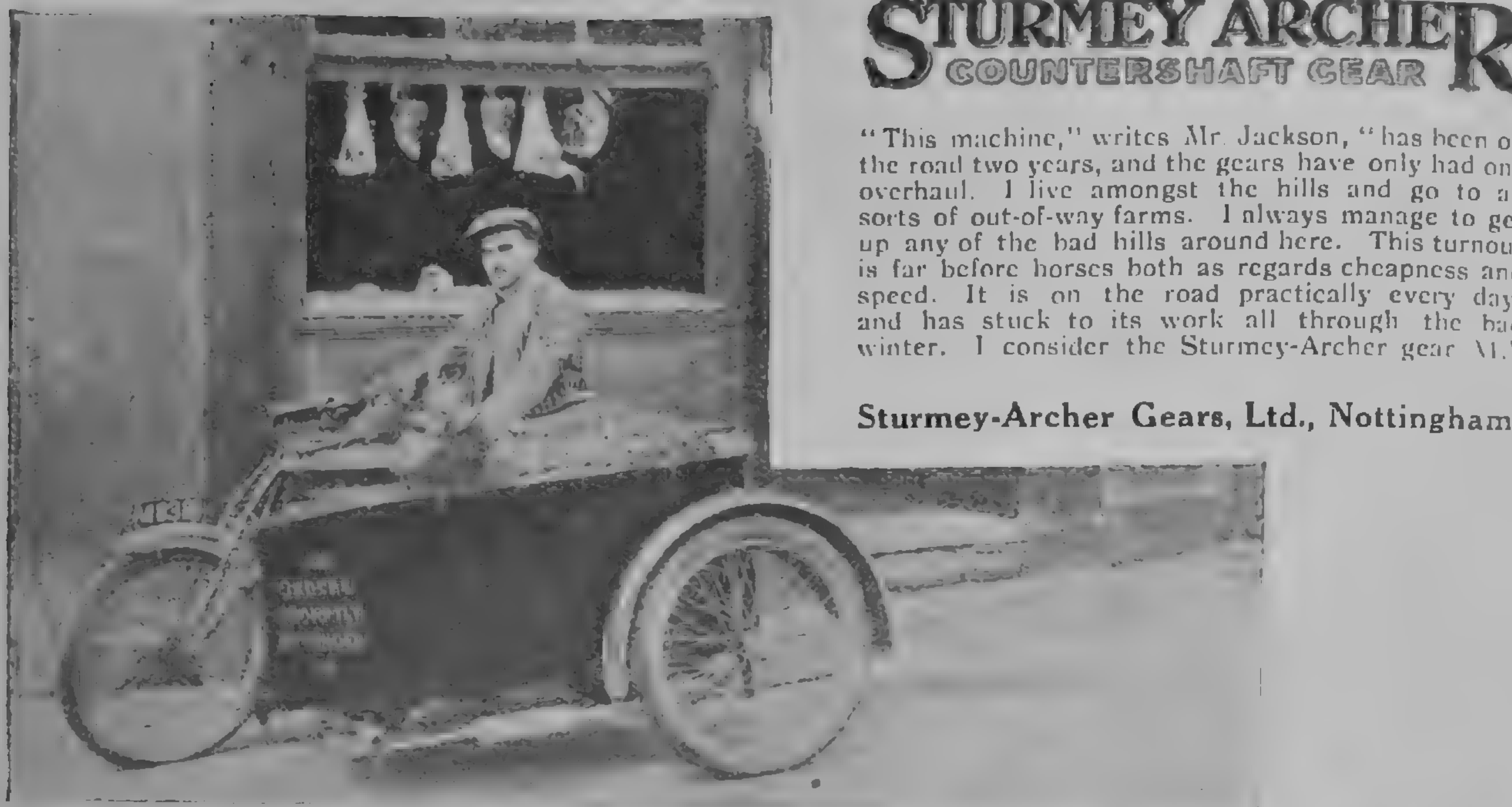
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This is the expression applied, after experience on a 4 h.p. Norton, as illustrated, by Mr. W. Jackson, 18, Palmerston St., Bollington, to the

STURMEY ARCHER COUNTERSHAFT GEAR

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With "Keygrips" on, it is goodbye to aches from jarred wrists and back.



M.C. 508.

The Difficulties of Coal-gas Carburation.

How They May be Overcome by Fitting a Separate Valve for the Admission of the Gas to the Cylinder.

ON first thoughts the suitable adaptation of coal-gas for use in a motorcycle appears to be rather difficult, although in actual practice it has been found that the gas can be mixed with the air at the point of its entry into the carburetter, and sufficiently good results have been obtained to enable numerous people to continue to run their machines and cut down their fuel bill to about a quarter of its previous amount. However, practically no one has yet produced a gas carburetter which satisfactorily ensures that the proportion of gas to air is kept constant at 1 to 8.5. To my mind perfect results will not be obtained until the valve gearing is redesigned, but before going into such radical changes in engine construction, perhaps my reasons for stating that passing the gas through the ordinary carburetter is too haphazard a method should be more clearly explained.

Variations are bound to occur owing to the wind pressure on the bag itself and the direction of the wind. Even supposing that the flow of gas is governed by the throttle opening the mixture is bound to vary. It is a much more difficult thing to allow only so much gas to come out of a jet than to depend on the suction of the engine to lift so much liquid, as is the case when a fluid fuel is used. It is for these reasons, therefore, that I consider the gas carburetter idea can be put on one side.

Everyone who has had anything to do with stationary gas engines knows that, as a rule, there are three valves in use, one for the inlet of air, one for the inlet of gas, and the third for the passage out of the exhaust gases. The actual port area of the air valve is considerably larger than that of the gas valve, and by experimenting manufacturers have been enabled so to design these ports that the amount of air passing into the cylinder is eight and a half times the amount of the gas. Not only this, but the exhaust valve is larger than either of the other two; probably the area of the exhaust port is equal to the combined areas of the two inlets. (By the word "area" I mean the actual opening through which the gas is allowed to pass, and not the area of the valve.) I think that it will be generally admitted that the present exhaust valve, as fitted to the motorcycle engine, is perfectly large enough to allow of the full amount of the exhaust gases being passed out. It therefore remains to consider how we can satisfactorily alter the inlet.

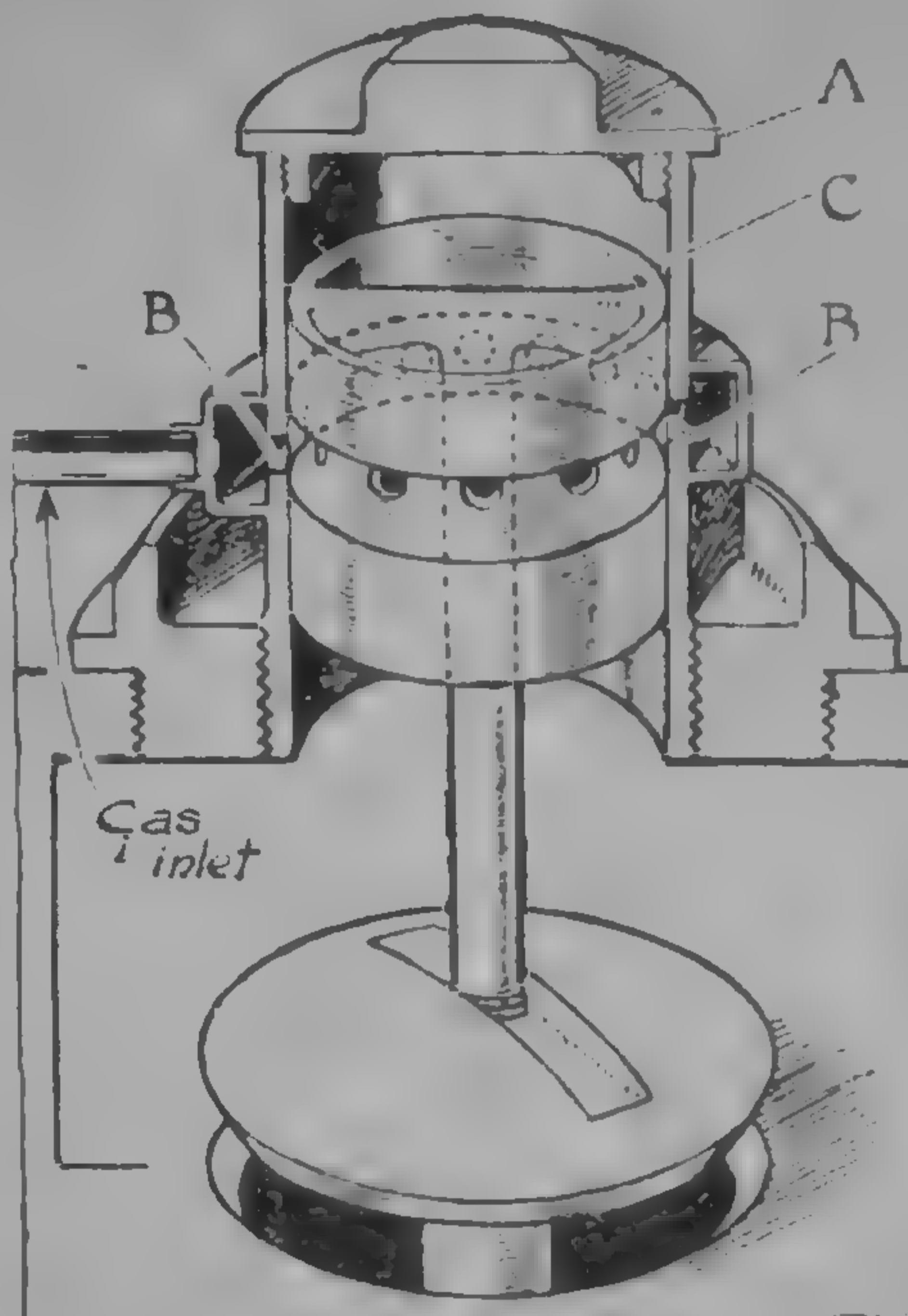
In some way a third valve must be added to the cylinder for the admission of gas. If possible the area of the opening of the present inlet valve must be reduced slightly, and this kept for the admission of air only. In the case of the stationary gas engine the speed of the engine is generally very low, certainly never more than 500 r.p.m., and this is controlled by a governor, which cuts off the gas when the speed exceeds a certain number of revolutions which has been previously fixed. In fact, the sole means of

controlling this type of engine is by the amount of gas admitted. I do not think that this would suit the high-speed motorcycle engine of the present day, and, in fact, I have tried controlling my own machine by means of the gas tap without any success. Consequently, it is necessary to control the whole mixture, and the simplest way of doing this will undoubtedly be by means of a variable lift cam, such as was fitted to the inlet valves of many motorcar engines of ten years ago. This opens up infinite possibilities to the designer of an ultra-efficient engine to be run on coal-gas. The whole control would be by one lever which would move the cam on the half-time shaft in such a way that the lift of the inlet valve would vary from full down to a very minute opening.

In order to simplify the alteration it should be possible in some way to interconnect the valve for the admission of gas with the valve for the admission of air. It does not require a large amount of ingenuity to devise a cam which will give a variable lift, or to design suitable means of moving on the half-time shaft, and after a very little thought the best position for the gas inlet valve will be obvious. I do not think there will be any doubt that this would be situated immediately over the present inlet valve, and probably the best method of operating this would be by attaching it to the head of the present valve, so that the one cam would operate both. If, however, this new valve were of the poppet type it would be necessary to fit a very much stronger spring, and therefore I favour a valve in the form of a sleeve or piston without a head. The details of this suggestion are better shown in the sketch. A small cylinder (A) is fixed to the valve cap, and part way down this cylinder is a ring of ports (BB) connected with the gas supply. Operating in this cylinder is a sleeve (C) and a deep groove is cut round this and drilled in several places to afford the gases a passage. This sleeve is connected by a short rod to the ordinary valve head.

The sleeve should be fixed above the ordinary valve head at such a distance that when the valve is closed the groove in the sleeve just comes below the ring of ports, and when the valve is wide open (at its highest lift) the groove opens up all the ports. When making this ring of ports in the cylinder, care should be taken that they are not all level, but on a slightly ascending line, and the groove should be just wide enough to allow all these to be opened at the highest lift of the valve. Thus, when the variable cam is in position just to lift the valve, only a whiff of gas is permitted to enter by the sleeve. The area of the opening in both valves should be so designed as to allow only the fixed proportion of gas and air to enter. Having gone so far I leave the final deductions to professional designers, but I am certain that this will be the best method of controlling the supply of gas.

C.J.T.



A suggested gas valve operated by the ordinary inlet valve.

1918——WHAT DOES IT PORTEND? SHALL WE SEE
PEACE AND A RETURN TO THE OPEN ROAD?



—NEWS in BRIEF.—**Lighting-up Time for Saturday, 5th January, 1918.**

London	...	...	...	4.37 p.m.
Newcastle	...	...	...	4.25 p.m.
Birmingham	...	...	...	4.39 p.m.
Dublin	...	...	...	...

Lighting-up time in Ireland and Scotland is one hour after sunset, but the Scottish lighting regulations (vehicles) come into effect half-an-hour after sunset.

Edinburgh	...	...	...	4.55 p.m.
Liverpool	...	...	...	4.39 p.m.
Bristol	...	...	...	4.47 p.m.
...	...	...	5.23 p.m.	...

Lighting-up time in England and Wales is half-an-hour after sunset.

Moon—In last quarter.

Thanks.

MANY thanks to those of our numerous readers amongst the overseas forces in Europe, Asia, Africa, and on the High Seas, who sent us Christmas and New Year greetings.

The 1918 Licence.

IN view of the fact that fuel supplies for civilian motorists will be severely limited during this coming year, the Automobile Association and Motor Union has made strong representations to the Treasury Authorities, urging that Inland Revenue taxes on motor vehicles should be modified for 1918. These representations have also been made by ourselves.

Motorcyclists' Interest in a Needed Aeroplane Invention.

IN the notes by "Gnome" of 25th December, there was a suggestion widely quoted in the daily Press that a fortune awaited the inventor of an instrument which would indicate when a machine was flying laterally level, to which we have received a very large number of replies. We have forwarded the whole of the correspondence to the Air Board, Technical Department.

Petrol Economy in America.

AMERICA, land of motors, has early commenced its fuel economy campaign. A series of hints towards this end has been issued by the National Automobile Chamber of Commerce, many of which will sound somewhat superfluous to the frugal British motorist, who has become so accustomed to hoarding every atom of his precious fuel that he would feel almost insulted by such suggestions as: "Do not use gasolene for washing or cleaning; use kerosene (paraffin) to cut the grease; do not spill gasolene or let it drip when filling; do not expose gasolene to the air," etc. The United States Government does not contemplate any action to compel motorists to give up riding for pleasure or recreation, and if there is a general effort to economise gasolene it is believed that there will be ample to meet all reasonable requirements. It is hoped that a saving of 10 per cent., amounting to over 126 million gallons of spirit in the next twelve months, will result.

Dreadful Happenings Foretold.

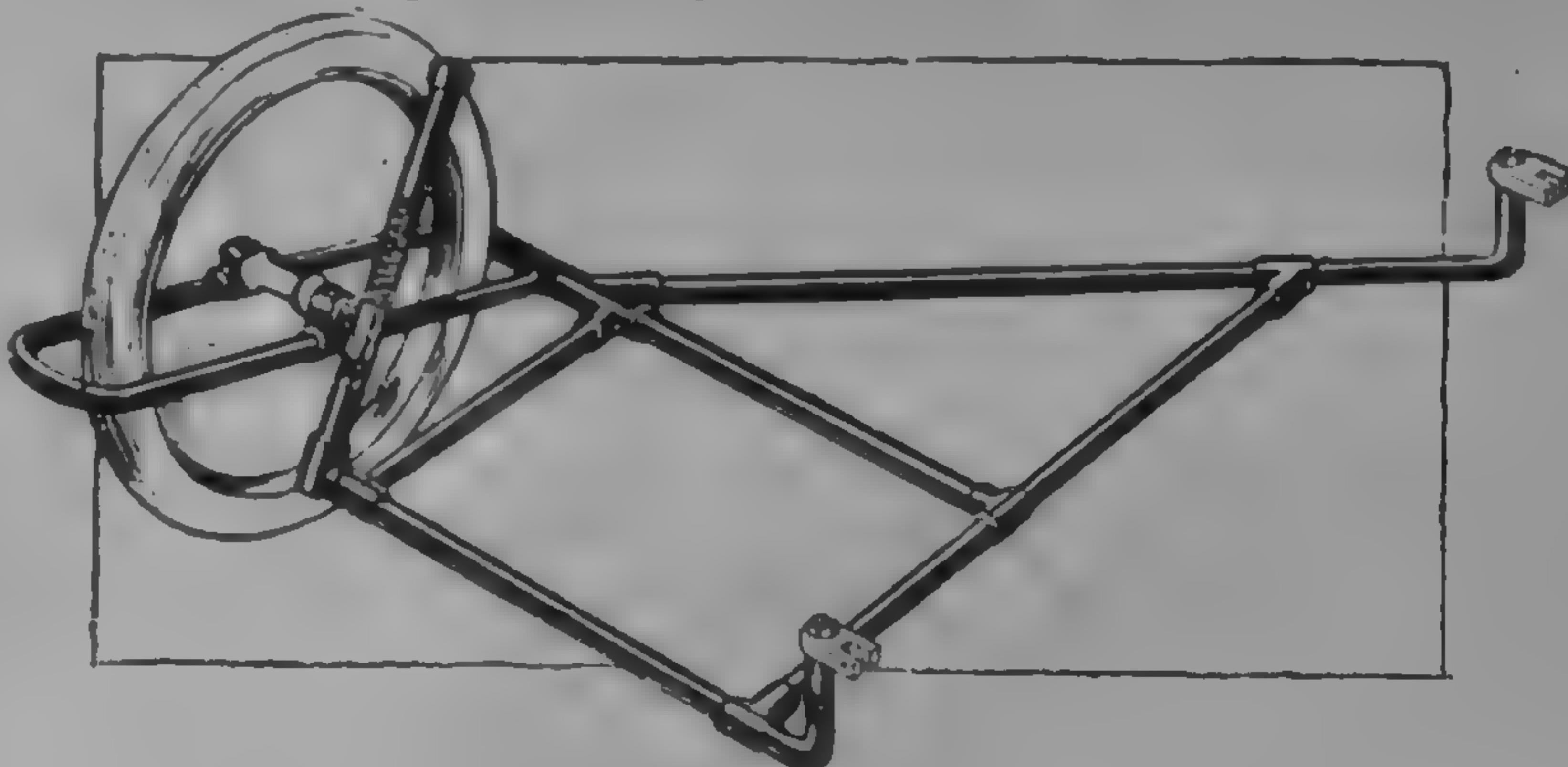
WE rather expect something wonderful to happen in 1918, but we are slightly perturbed at the appearance of a motorcycle in "Old Moore's Almanack" for the month of July. Judging by the illustration, which shows a sort of concertina engine, having air-cooled fins cast on it from the bottom of the crankcase to the bottom of the tank, and a strange excrescence on one side, that something will be pretty terrible. The machine is mounted by a feminine figure in skirtless dress, scorning convention by posing herself delicately with one foot on the tank. "A spirited picture," runs the prediction, "selected by the Prophet for the month of July, shows us that the eternal feminine will be in great demand, especially in our Colonies. July will be a time of trouble, stress and unrest; again and again we shall have outbreaks and riotous conduct amongst a dangerous and reckless body of the Commonwealth." We should think so, too. Quite apart from the feminine figure being likely to create a riot, we should imagine that some of our Overseas Dominions would have outbreaks of a very dangerous character if the machine portrayed were dumped on them.

Wrong Address.

WE would draw attention to the fact that the address given for "Premier Policies" in the full page advertisement appearing in last week's MOTOR CYCLING is incorrect, and should be: Broad Street House, London, E.C.

A Face-to-face Two-seater Sidecar.

A PATENT for a novel type of sidecar has been taken out by a Worcestershire resident. The sidecar has two seats, arranged so that the occupants face each other, while the well in the middle where their feet are accommodated can be filled in by a cushion partition so that a passenger may be carried alternatively in a reclining position. This partition, when not required, is strapped to the outside of the sidecar, or may be used as a partition between the two seats. The latter are hinged in order to give access to lockers underneath them. This sidecar would be admirable for ambulance work, although it is questionable whether the length of the body would allow a passenger really to recline at full length. It seems inevit-



A patented spring wheel suspension from Holland.

able that the legs will be cramped. Nevertheless, the idea of two seats facing each other is one which will no doubt commend itself to sociably inclined sidecarists.

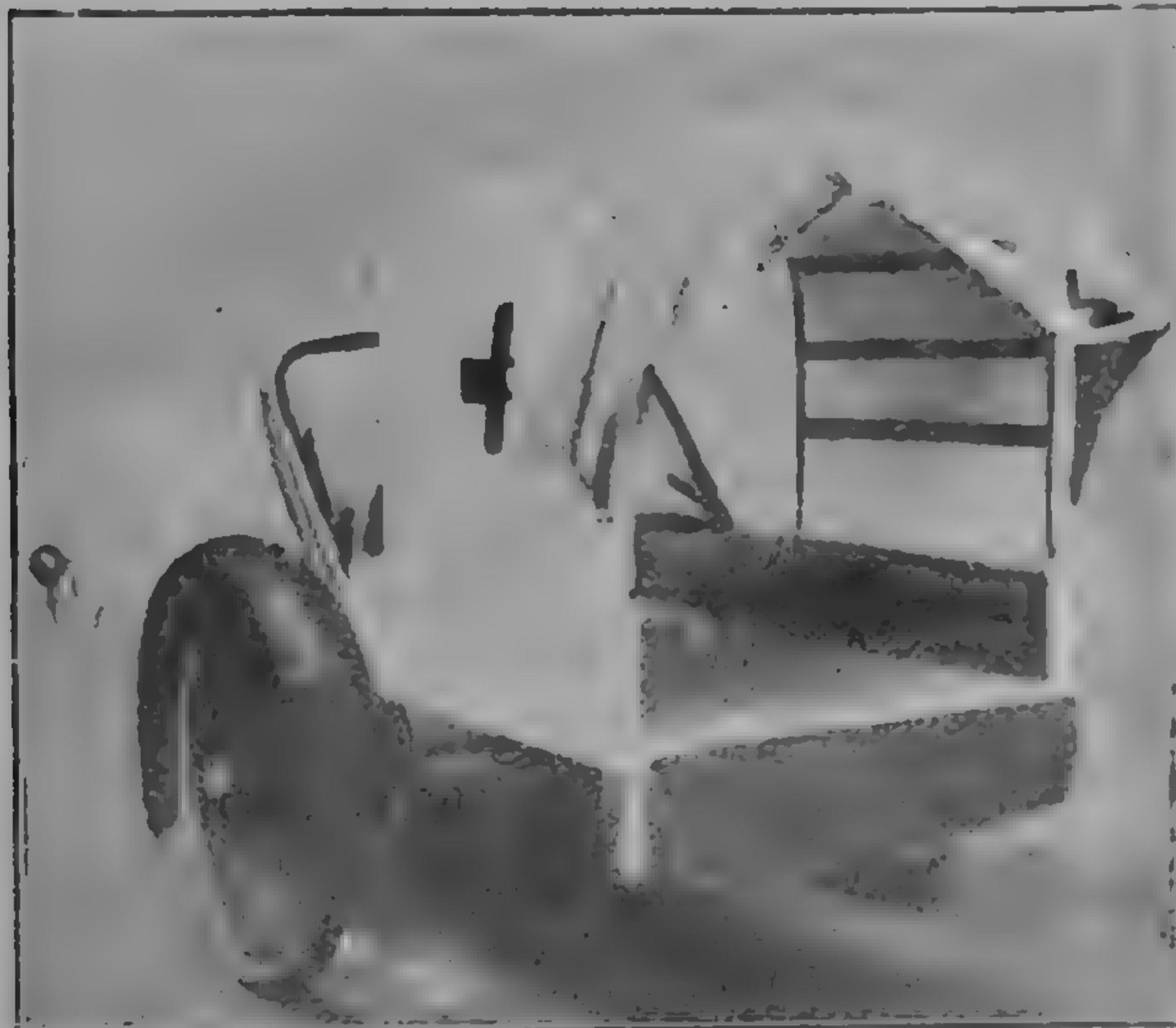
Spring Wheel Suspension.

A PATENT for a new sidecar spring suspension has been taken out recently in this country by Mynheer C. H. Bouvy, 50, Noord Einde, Delft, Holland. The inventor claims that the great drawback to the present types of sidecars is that the frame is too high and, consequently, the centre of gravity of the loaded sidecar is also too high. He further remarks that the arrangement of tubes bent at right angles on the near side of the sidecar can hardly be recommended, owing to their being subjected to heavy strain. In this new invention the sidecar is provided with a spring suspension and the frame is very low. This position is obtained by fitting a pivoting fork in front of the sidecar wheel, this fork being hinged upwards and supported in position by either helical or laminated springs fitted to the frame. In the illustration we have shown the device fitted with helical springs. The inventor claims that with this spring suspension a sidecar can be produced at very little more than the cost of one without the spring wheel. We understand from the patentee that he has made a sidecar with this chassis, and has ridden it over 37 miles with entire satisfaction. He wishes to sell the patent rights in this country.

News in Brief (contd.).

Take All Particulars in an Accident.

COMMENTING upon an interesting running-down case at Trowbridge, in which a car driver and a motorcyclist sued each other for damages, neither claim being allowed, the judge remarked that he wished advocates would give particulars of negligence in running-down cases where such negligence was alleged. Otherwise, they started with a sort of roving inquiry which made matters very awkward for the judge.



The back of an Enfield sidecar ambulance belonging to an Exeter gentleman.

Sidecar Ambulances.

FROM time to time we have made mention of sidecar ambulances in the various theatres of war, showing how in certain circumstances they are the only type of ambulance which it is possible to use. We have received, through the courtesy of the Enfield Cycle Co., photographs of an outfit used by a rider of one of their machines in Exeter. The body was made by a local firm, but the owner says that it reflects great credit upon the makers of the machine, as it weighs 109 lb., without stretcher or blankets, and, although a Red Cross orderly is carried as well, he has no difficulty in negotiating the steepest hills.

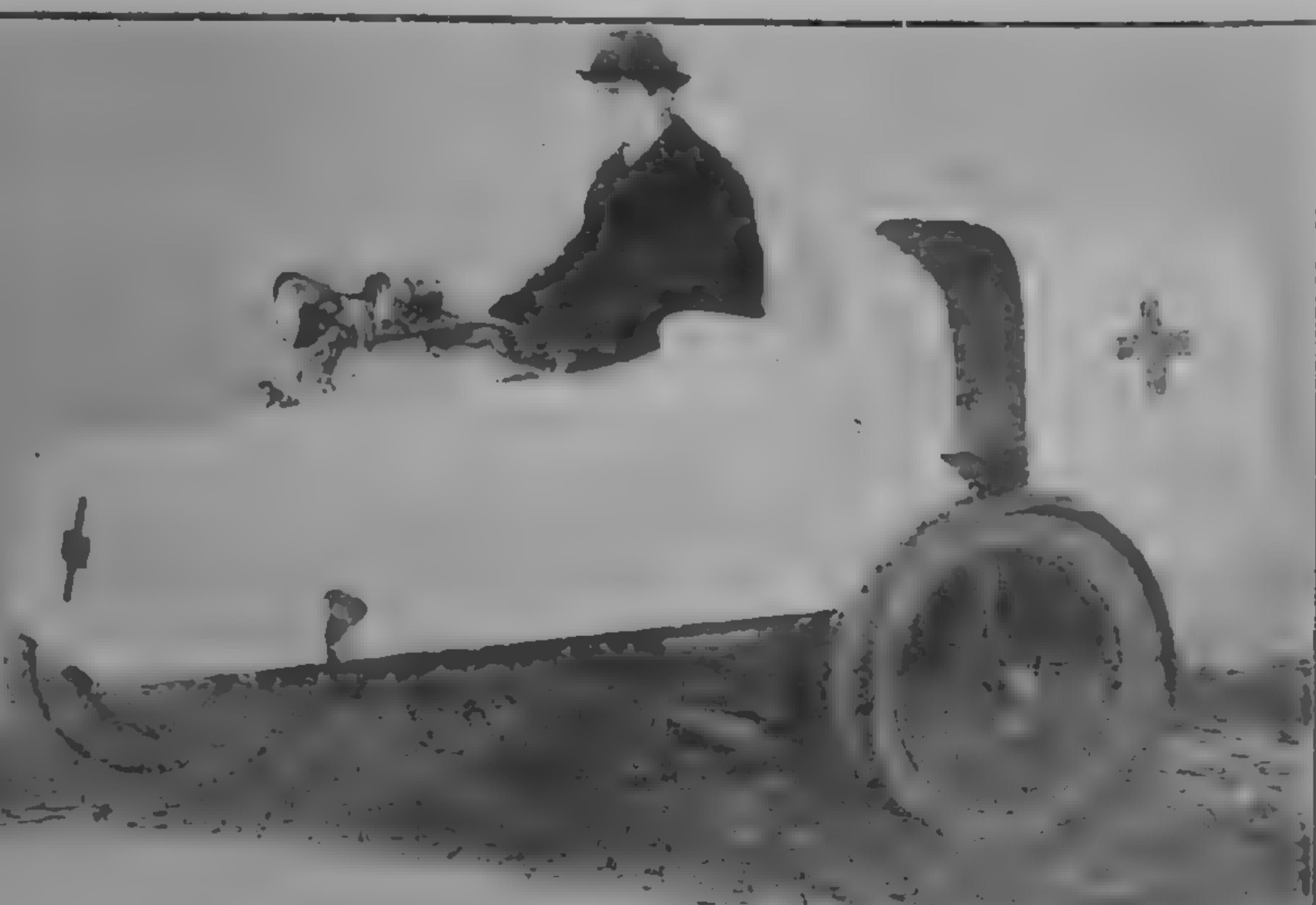
Licences For Identification Purposes.

A FINE of 20s. and costs was imposed upon a wounded officer at Chester recently, who defended a charge of driving a motorcycle without a licence by the statement that his licence had expired without his knowledge while he was at the Front. It was stated that, when stopped by the police, the defendant said he had left his licence at home, but when asked for it again later produced one taken out on the first day upon which he was stopped. A superintendent remarked that it was important for officers to carry their licences when riding, if only for identification purposes, as it would be easy for anyone to go masquerading as an officer all round the country.

What Petrol Restriction Costs.

IN response to a question in the House as to the duties and salaries of local petrol controllers, Mr. Wardle stated recently that no such controllers had been appointed, but eight inspectors had recently taken up their positions under the Petrol Control Department. Their usual salaries were £3 weekly, and their employment consisted of the inspection of licensed dealers' petrol stocks and visitation of various garages, etc. throughout the country to this end.

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An Enfield sidecar ambulance belonging to an Exeter motorcyclist.

Change of Address.

MESSRS. THE PALMER TYRE, LTD., inform us that they have vacated their Belmont Row premises in Birmingham and are now installed in their new showroom, depot and offices at Broad Street Chambers, Birmingham, whence all inquiries and communications for this city should be addressed.

Parent Tyre Results.

THE report and accounts of the Parent Tyre Co. for the year to 31st August last have now been issued, and the profits for that period are shown by them to have risen from £107,199 to £115,659. The dividend upon the ordinary shares is to be 8 per cent., as before, but the distribution upon Deferred Shares is to be increased from 7 per cent. to 11 per cent.

The N.M.C. Fuel Union Annoyed.

IN our issue of 11th December we ventured to inquire who were the sponsors of that curious body, the National Motor Cyclist Fuel Union. Evidently the Union did not like the brutal manner in which we dragged it into the limelight and we have received the following slightly humorous correspondence:

18th December, 1917.

The Editor, Motor Cycling.

Sir.—I am instructed to forward you, and the leading advertisers in your paper, a copy of the resolution passed at the general meeting of the Birmingham Branch of the National Motor Cyclist Fuel Union.

RESOLUTION.

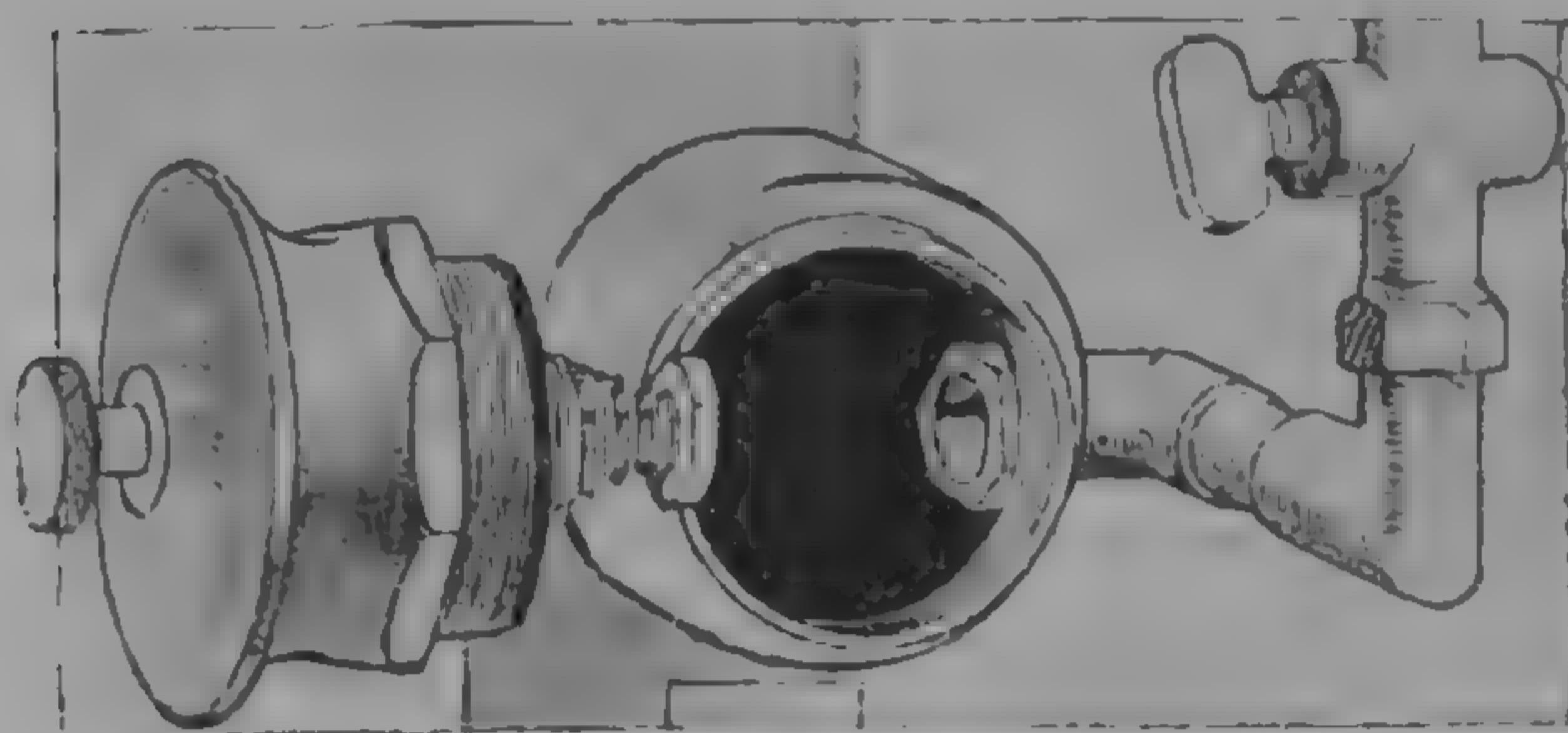
We, the Birmingham Branch, representing 850 members of the National Motor Cyclist Fuel Union, hereby protest against the untruthful innuendo contained in the Editorial footnote to the letter of "Grateful Gainer" in your issue of 11th December, 1917. Further, we are amazed that a paper professing to represent the interests of motorcyclists should display such ignorance of the interests and doings of its subscribers. Finally, we shall bear in mind your action when renewing orders with our newsagents.

We are wondering what this Association will have to say when it sees our comments, which are even more frank, appearing in our issue of the 25th December. The sober truth is that in these times it is useless for motorcyclists to band themselves together in an endeavour to extract petrol from the Petrol Control Department. Every application, whether sent in singly or collectively, is considered on its merits, and, as we pointed out last week, a collective appeal for petrol is likely to be more closely inquired into than an individual application. On no other system is the proper rationing possible of the very limited supplies of motor spirit which are available.

News in Brief (contd.).

Gas Notes.**A Well-carried-out Conversion.**

WE are enabled this week to give a photograph of a Harley-Davidson outfit which has been converted to use coal-gas by Mr. Masters, of the Harley-Davidson Motor Co., Ltd. The pleasing lines of the tray which supports the gas bag are very noticeable and make quite an attractive appearance. The gas is led from the bag to the carburettor through a flexible metallic tubing to the extra-air inlet, which is found on the side of the carburettor. Mr. Masters has made this connection in a very simple manner. As will be seen from the sketch, a $\frac{3}{8}$ -in. gas nipple has been placed through this air inlet and secured by means of a nut on the inside of the carburettor. The extra-air valve is shown removed in the sketch. We had a short run with Mr. Masters on this machine and found it perfectly satisfactory.



The connections to the Harley-Davidson carburettor are very simply made through the extra air inlet.

The Alms Hill Climb.

WE are sure the sympathies of all motorcyclists will go out to those who were looking forward to attempting the climb of Alms Hill on coal-gas during last week. This, of course, was rendered impossible by the break in the weather. It can, however, be regarded as a stroke of luck by those who are just completing their conversions, since it gives them a chance to send in their names and get there first.

Fighting the Coal-gas Restriction.

EVIDENTLY realizing that if the motoring world is to hold its own in the face of a strangling Government policy, a strong initiative must be taken, Messrs. Alexander and Co., the well-known Edinburgh motor dealers, are utilizing their advertising space this week in a vigorous appeal to the trade, the motoring organizations and the motoring world generally to unite in a campaign against the proposed coal-gas restriction. The reasons given for this protest are to the effect that there are now practically no joy riders, and it is in the national interest that more coal-gas should be manufactured in order to assist production of explosives. It is pointed out that where there is a shortage of gas the distribution can be controlled locally. Anyone willing to join in the campaign is invited to write to Messrs. Alexander and Co.

Gas Included in the Motor Restriction Order.

THE Board of Trade make an announcement to the effect that, in concordance with the Petroleum Executive, it has been decided to apply restrictions similar to those employed in connection with motor spirit to the use of coal-gas for motor vehicles. This step is rendered necessary, the authorities state, in consequence of tonnage difficulties and the probability that further reductions in the use of motor spirit for civilian purposes may become necessary at any time. Labour and raw material problems are also partially responsible for this decision. In the case of vehicles already converted to run on gas, permits for their use for essential purposes will, wherever possible, be given. It is not proposed to ration the quantity of gas used, but only to confine the use of coal-gas to essential purposes, such as are enumerated in the Motor Spirit Restriction Order.

The Gas Rally.

WE are still receiving names of those who are willing to show their machines on Wimbledon Common at some future date to other motorcyclists who are desirous of converting their machines in order to use coal-gas.

Beldam Tyre Finance.

THE directors of the Beldam Tyre Co., Ltd., declare an interim dividend upon the ordinary shares for the six months ending 30th September last, at the rate of 10 per cent. per annum.

Women Motorcyclists Needed for the Army.

WOMEN motorcyclists are now being supplied by the Women's Legion to the A.S.C. and R.F.C. for despatch and other duties in connection with these corps. Application should be made by intending recruits to the Headquarters, Women's Legion, 115, Victoria Street, London, S.W. 1.

A Matter of Opinion.

DURING the hearing of a charge of using petrol contrary to the Motor Spirit Restriction Order in order to attend church, a member of the Town Bench retired, remarking that, to his mind, it was more important to attend a house of God than to observe the Order. "It is a matter of opinion," says the "Cambrian News," commenting upon the case, "whether it is more important to obey the Petrol Order than to drive miles to attend a particular church."

A Waterproof Sale.

THE name of Burberry always stands for the very best in rainproof garments, and most motorcyclists who require rain-proof coats will be glad to hear that Messrs. Burberrys are holding their usual New Year sale, which commences to-day. However, this year no goods can be sent on approval, this decision having been arrived at in order to assist, in some way, in curtailing the large amount of work which would be entailed for the Post Office and railway staff. A personal visit is therefore advised.



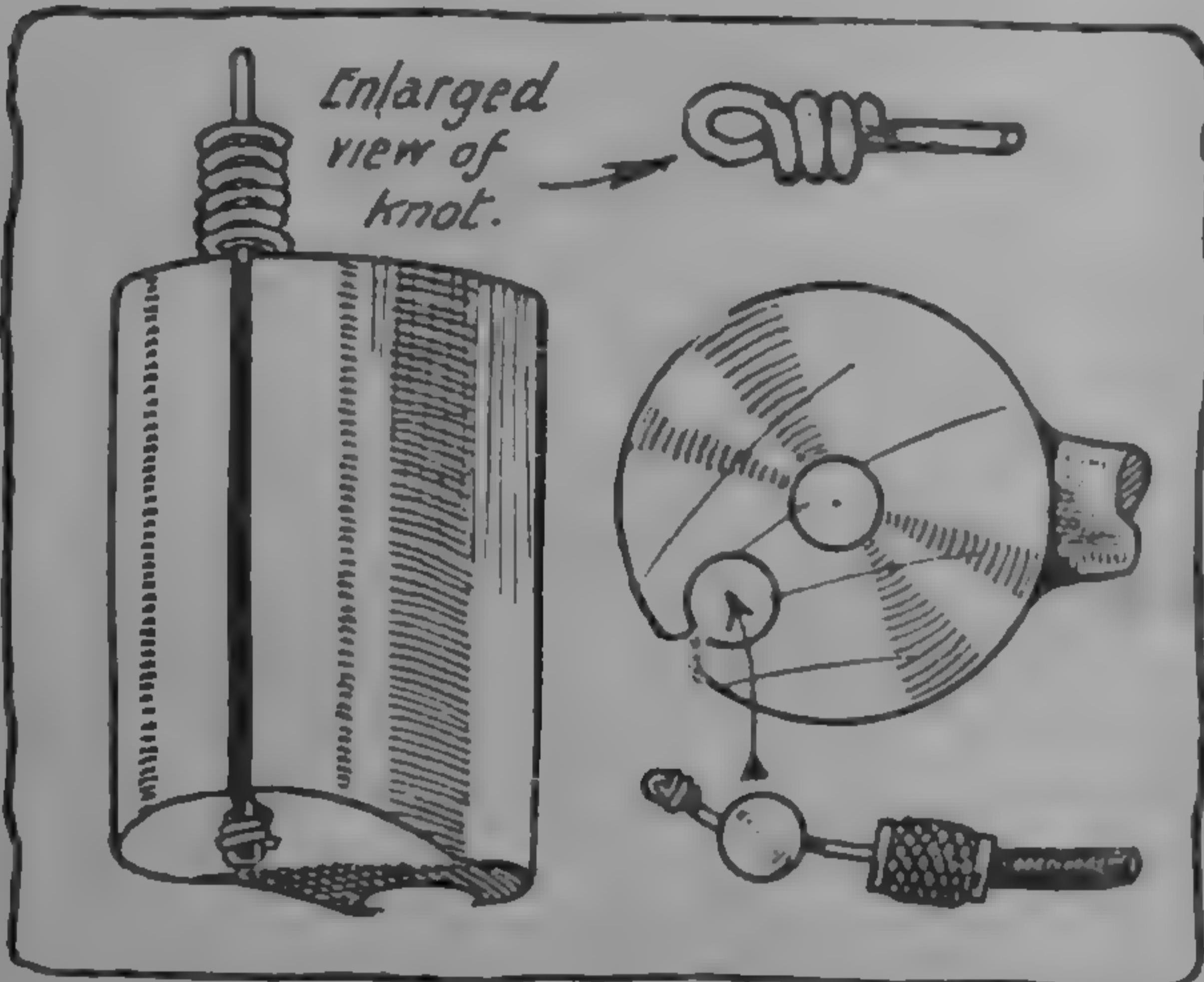
A converted outfit belonging to Mr. Masters, of the Harley-Davidson Motor Co., Ltd.

HINTS AND TIPS.

It should be remembered that two "Motor Cycling" sparking plugs are sent to each reader whose Hint is published.

Broken Control Wires.

One of the most annoying troubles which can happen on the road is that of one of the carburettor control wires breaking or coming adrift. A quick repair can be made if a small coil of steel piano wire, about 25 B.W.G., is carried in the tool-kit. The method of repair is as follows:—First, remove the lever from the handlebar and withdraw the old wire. The nipple can be taken off if it is held in the flame of a match, when the solder will melt. Next, take a length of the piano wire and tie a knot in one end of it. This should be pulled tight with the pliers and made as small as possible; then the end should be cut off close to the knot. Slide the nipple on so that the knot lies in the countersunk end and replace the nipple in the lever. The straight end of the wire can then be pushed through the handlebars and the levers re-assembled. The outer casing should now be put on as far as it will go into the handlebar and the wire threaded through the top of the carburettor spring and barrel.



A simple method of replacing broken control wires.

With the levers in the closed position and the two carburettor barrels level the wire should be pulled tight and marked. The barrel can now be taken off and the end of the wire doubled up to the mark and coiled round two or three times, or another knot can be tied. The remainder of the wire should then be cut off, when the carburettor can be put together again. It will be found that this repair will last a very considerable time, especially if the oil-can is used when threading the wire through the outer casing; this also incidentally tends to an easier control action.

G.A.

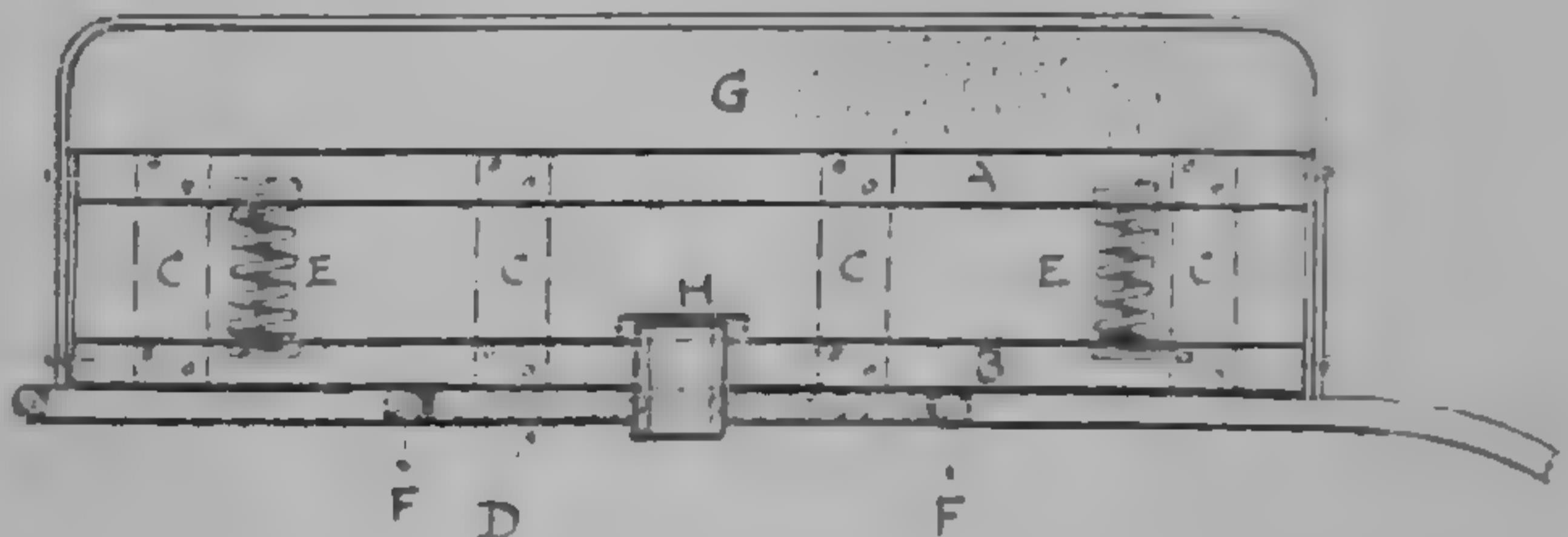
A Home-made Pillion Seat.

A quite efficiently sprung pillion seat, which has certain advantages in comfort over the hinged pattern, may easily be made by the average motocyclist at the cost of a few shillings. The detailed sketch shows the main construction of this. Two $\frac{3}{8}$ in. boards (A and B) are cut to the size of the carrier and the lower one (B) has a piece of wood (D) screwed to its under side. This piece of wood should be an exact fit between the two cross-bars of the luggage carrier (FF). This prevents any twisting movement of the

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Jottings From Our Readers' Notebooks.

seat. In the four corners of the boards (A and B) are countersunk holes to receive the springs (E), in order to retain these in position. The boards and springs are then placed together and slightly compressed, while strips of leather or pigskin (C) are nailed to the edges on both sides. This is done in order to keep the springs in moderate compression so that they will not be jolted out of position. The top of the board



A home-made pillion seat.

(A) is then covered with padding and suitably upholstered, the whole presenting quite a neat appearance. The advantage over a hinged seat is that, in addition to all downward shocks, the forward, backward and side movements are comfortably absorbed, for there is no rigid connection as there would be with a hinged joint. No fixing is required when a passenger is on this seat, but if desired two slits in the material at H will allow of a strap being fitted to secure the seat to the carrier.

M.A.R

A Useful Tool.

After an engine has been removed from the frame, it is generally a difficult matter to replace the bolts which fasten the crankcase to the lugs in the frame, and it is with this end in view that the following idea is suggested. What generally happens in replacing these bolts is that the threads on the ends are burried up, owing to the endeavours of the motocyclist to force the bolt through without the holes being exactly in line. To prevent this, it is only necessary, when the engine has been taken from the frame, to drill a hole in the end of each engine bolt; these holes are tapped



A useful adjunct to assist in replacing engine bolts.

out with a $\frac{1}{4}$ in. thread. Then a small conical-shaped piece is turned up in the lathe with the end opposite the point threaded to screw into the end of the bolt. The widest part of this conical piece should be of the same diameter as that of the body of the bolt itself. All that it is necessary to do when re-erecting the engine in the frame is, before putting the bolt in the hole, to screw this piece of metal into the end of the bolt, when it will be possible to force the latter through the hole without in any way damaging the threads. When the bolt has come through the other side the piece can be screwed off and screwed into the next bolt.

J.A.

AIR ARTS AND CRAFTS.

Aviation from a Motorcyclist's Point of View.

THE chief point in favour of travelling by aeroplane at the present time is speed. The comfort of the passengers has not received the attention that it needs if flying is to become popular. As in the early cyclecars, the passengers sit tandemwise generally, with a considerable space between them, which renders communication by the ordinary means practically impossible. It was said that lack of sociability killed the tandem cyclecar, and the same may be said again after the war of the tandem-seater aeroplane. When speed and performance are of less importance than they are at the present time, the passengers' seats may be arranged side by side; in fact, already on some of the largest machines there is ample room for two seats abreast. Also, on an old-type Bristol machine with dual control, the pilot and pupil's seats were arranged side by side, so that this arrangement should not prevent any great difficulty in design. With a three or four-seater machine provided with ample protection against wind and weather there is no reason why travelling by aeroplane should not become popular. Imagine the scene at Hendon, at about mid-day on Saturday, just as the week-end rush to Brighton is starting—perhaps 100 machines all lined up into the wind with their engines being warmed up and ticking over as sweetly and silently as an up-to-date motorcar. Along comes the business man with a friend, or the man about town with the latest rage in the theatrical line. There is a long queue at the booking office, and they take their places. "Two first air returns, Brighton," snaps the man about town. His ticket bears the number of the machine that will take him to his destination, a porter takes his luggage and shows him to the gangway. The machine is taxied alongside. He and his companion get aboard. The luggage is stowed, and in a few minutes the sheds and long lines of machines on the ground look but specks far below them. Soon they are hidden in the haze floating over the Metropolis, and 30 minutes later they are stepping out of the machine at their destination. No need to lunch in London or on the train, for a taxi quickly whisks them to the Metropole, where a repast is waiting ready for them.

A Single-valve Four-stroke Engine.

The Monosoupape motor, so called because of its one-valve arrangement, is one of the most ingeniously designed engines of the day. It was produced as an improvement on the Gnome engine, to which aviation owes as much as motor cycling does to the introduction of the high-tension magneto. In the Gnome engine the inlet valves are placed in the piston heads, where they are both inaccessible and liable to give trouble owing to the great heat to which they are subjected. An ordinary type of overhead exhaust valve is used. The petrol and air are taken into the crankcase and sucked into the combustion chamber via the automatic inlet valves in the pistons. Compression and explosion and exhaust take place as in the ordinary type of engine, the exhaust being driven



A seaplane leaving the mother boat. One of the many fine illustrations in the "Work and Training of the Royal Naval Air Service" ("Illustrated London News." 2s. 6d. net).

out past the overhead exhaust valves by the upward stroke of the pistons. In the Monosoupape the system is different, and in some ways resembles two-stroke practice. The only valve used is of the overhead type placed in the top of the cylinder. There are a number of small transfer ports at the foot of the cylinder, which, when uncovered by the piston, provide a path by which the rich mixture of petrol in the crankcase reaches the combustion chamber. The cycle of operations is as follows:—The engine fires its power stroke and the valve opens very early on the down stroke, thus allowing the exhaust gas to escape. Hence the peculiarly deafening noise of the mono engine in flight. The valve remains open on the inlet stroke, so that cold fresh air is sucked into the engine, which, incidentally, helps to cool the valve. Then, before the piston reaches the ports in the base of the cylinder, the valve closes. The piston continues to descend, and until the ports are uncovered creates a suction in the combustion chamber. The ports are then uncovered, and in rushes the rich petrol mixture, which combines with the pure air already taken in via the valve to form a correct mixture. The piston on the upward stroke closes the ports and compression takes place in the ordinary way. The simplicity of the design of this engine is the chief point in its favour. As might be expected, the engine is not so

Air Arts and Crafts (contd.).

economical as regards fuel consumption as the more ordinary types.

Difficulties of "Forced Landings."

If a pilot's engine fails he has to glide to earth and choose the best landing ground within his reach. He has many difficulties to contend with in making a forced landing. First of all his judgment of distance must be perfect. On a calm day his glide will be much longer than it would be if the wind were blowing against him, so he has to allow for the strength of the wind. He has also to find out its direction, in order to land against it and thus reduce his landing speed and the "carry" of the machine when it has alighted. He can tell the direction of the wind from the air by seeing which way smoke from rubbish heaps or chimneys is blowing. Another difficulty that he has to face is the character of the ground he has chosen to land in. It must be moderately smooth and level, and of course not soft or swampy, as otherwise he may turn over after he has landed; but from the air it is almost impossible, until one is quite low down and about to land, to tell if the ground underneath is level or hilly. From a height of a few thousand feet, hills of several hundred feet high appear as level ground. Again, he cannot tell until he is about to land whether there are any hidden pitfalls, such as wire fences or overgrown dykes or ditches, in the field he has chosen. A small thing like a frozen mole hill or a plough left by the farmer out in the open may cause his undoing. Obviously, the best kind of field to land in is pasture. In the case of roots or soft plough, the wheels of the machine are liable to stick when the weight is taken by the ground after landing, and the machine may easily be tipped up on its nose. In making a landing it is always the object of the pilot to touch the ground at the lowest possible speed. In some cases, as for instance if a landing were made in soft plough, he would attempt to "pancake," that is to loose his flying speed two or three feet in the air and then to flop down to earth.

Learning to Fly.

It is probable that a beginner always remembers the first two or three times that he goes up in order to learn to fly. His first impressions of the air, although afterwards dimmed by familiarity, will never be entirely forgotten. When he first tries to control the machine he will find that he has more to do than his brain can manage. He has three main objects in view—first to fly the machine straight, second to fly it level, and thirdly to keep it level laterally, that is, parallel to the horizon. His first 10 or 15 hours in the air will be occupied principally in training himself to make automatically the hundred-and-one small corrective movements of the control levers that may be necessary in even a short flight. Gradually by practice he will attain this end, and as he becomes more proficient the strain of flying will wear off. The saying that practice makes perfect is, if anything, more true when applied to flying than to most other things, and not only must the beginner train his sense of touch, but he must also accustom his eye to the speeds and angles of the machine in landing and getting off. All this takes time, and a slow-thinking man will take longer to learn than a fast-thinking man, other things being equal. For this reason it has been suggested that by measuring the time it takes a man's brain to transmit to his muscles the desired movement, some idea might be obtained as to whether he were likely to make a good pilot or not. But as sometimes a slow-thinking and slow-learning pupil may turn out to be a very sound and courageous pilot, this test would not be conclusive any more than would a test that subjected a man to a sudden shock with a view to seeing how sensitive his nerves were. Quite often the most

sensitive man becomes a most brilliant pilot by reason of his very sensitiveness. He is absolutely at one with his machine and can feel every strain and influence at work on it before the ordinary and more dull-brained pilot would dream that such a thing would be likely to occur. Obviously, therefore, it is very difficult to determine beforehand which men are likely to become good pilots and which indifferent. Similarly, it would not be easy to tell off-hand whether any particular individual would be likely to make a good horseman, billiard player or cricketer.

Air Bumps.

Motorcyclists on modern machines hardly pay any attention either to the strength or direction of the wind. Occasionally on under-powered machines they may have difficulty in making headway against a really strong wind, and sometimes after a long run with the wind astern they may notice a falling off in power on hills owing to ineffective cooling. The reason for this is that, if a machine is travelling at 20 miles an hour with a 20 m.p.h. wind behind it, it is always moving, more or less, in the same air, and the cooling draught depending on the difference of speed between the cylinders and the air is altogether missing. The motocyclist never experiences the air bumps which his brother in the air knows so well. Air bumps may be divided into three kinds:—(1) Heat bumps, which are more noticeable in summer when the change of temperature between night and day is greater; (2) wind bumps or gusts; and (3) bumps caused by the proximity of clouds and thunderstorms. The reason that a good deal of elementary school flying takes place early in the morning and in the evening is because the air is calmer at those periods. Heat bumps and wind bumps or gusts generally subside towards the evening, and in the summer begin to manifest themselves about eight or nine o'clock in the morning. If one is flying all day and making a number of short flights, it is quite possible to trace the upward progress of the bumps in the morning. It may be quite calm at six o'clock, whilst at 6.30 the bumps may have extended 200 ft. or so, and at seven o'clock they may have reached 400 ft., at eight o'clock 1000 ft., and at nine o'clock 2000 ft. Generally the air is comparatively calm at 1000 ft. and above, even when a high and gusty wind is blowing on the ground. The effect of the gusts may be caused by irregularities on the earth's surface, and these seem to be damped out with height. It is generally calmer over the sea than on land owing to the more even temperature of the atmosphere there. Air in the vicinity of woods or sheets of water is often very disturbed, and after flying a good deal in some particular neighbourhood the pilot would know the exact position of all the most pronounced air bumps and so would be able to avoid them if necessary.

Flying "Hands Off."

On most modern aeroplanes it is quite possible to fly "hands off" for quite long periods. The pilot steers the machine with his feet, and if the machine is correctly trimmed in the rigging fore and aft and laterally a slight movement of the rudder is all that is necessary to maintain both directional and lateral level. This "self" control is obviously a great advantage on a machine that is to be used for long-distance flying, as it relieves the pilot of a good deal of strain which he would experience if he had to be continually reseating the trim of the machine in flight, by means of the control levers. Some pilots prefer a machine which is not automatically stable, because it is possible to do more with it in the air and generally to manoeuvre it more quickly. Machines which combine the good features of both—the reliability of the automatically stable type, and the ease of manoeuvre of the other type—would seem to be the ideal. GNOME.

CROSS-COUNTRY COMMENTS.

Lubrication Problems—An Interesting Test.

ABOUT the most complex problem that remains to be solved to-day is that of the lubrication of the internal-combustion engine, especially the air-cooled type. Motorcycle practice favours the elementary method of dosing the engine periodically with an unknown quantity of oil by means of a hand pump. This dosing is, without exception, left to the discretion of each individual rider.

Lubrication. The 'human element, and incidentally its liability to err, thus being always present, a constant supply or a definite quantity of oil is never assured. In a few instances, however, a mechanical pump replaces the hand pump, but as its delivery is governed by the engine's revving range the supply is variable within these limits. Between the two systems, therefore, there seems little to choose, except perhaps that the mechanical one eliminates the factor of forgetfulness—and few, indeed, can trust to their memories invariably—because ultimately the distribution of the lubricant is carried out by means of splash. Splash itself is exceedingly difficult to define, but as we understand the term it means that the revolving flywheels or crank-shaft churn the oil into a vapour and spread it broadcast. This oil vapour follows the path of least resistance, and is deposited on the cylinder walls. This method, of course, is admirable in the case of a vertical single-cylinder engine, for the cylinder, which is the most vital part, receives a requisite amount of oil. In a V-twin or a two-cylinder opposed, however, the back or rear cylinder traps the oil spray, while the front cylinder gets starved.

The placing of obstructions in the form of baffle plates tends to minimize and equalize this irregularity and the piston and cylinder function the better for it. Even so, however, the splash method, when applied under the best possible conditions, is most extravagant, because the supply to such frictionless bearings as the mainshaft balls is neither less nor more than the supply to the usually overladen big or little-end bearings, and the temperature is much above that which it need be: yet this oil is expected to lubricate efficiently such a hot reciprocating part as the piston. From this, then, it appears that to lubricate an engine successfully oil must be supplied to each bearing separately and directly, according to the particular duty required of that bearing, in a regular and constant manner. Too much emphasis cannot be placed upon the need for regularity and constancy in the supply.

I REMEMBER, within the period of this war, subjecting a well-designed engine to exhaustive tests. It was lubricated partially by the splash method, and for the purpose for which it was intended to be used oil consumption was secondary in importance to

brake-horse-power. For the first five out of six hours the exhaust emitted a faint Phenomenon, blue smoke, but during the last hour, through, as was discovered later, a pipe being restricted owing to foreign matter, the trail of

smoke disappeared suddenly. Engine seizure then being foremost in my mind, I gave serious thoughts to the advisability of abandoning the test rather than running the risk of "doing in" the engine, when, without warning, I noticed that the power was gradually ascending. This was rather perplexing, but it encouraged me to complete the test, which was finished eventually with satisfaction, much to the surprise of those present. This naturally set me thinking and ultimately events showed beyond all doubt that with a governable supply of oil the power curve could be made to ascend and decrease at will. There are several important factors which contribute to this, and already a large amount of data has been obtained upon the subject and research is being continued with vigour. I mention the example, however, merely to drive home the importance of lubrication. Recognizing this, the question is: how can it be improved? Several methods are available, but the most practicable seems to be the dry sump system as used on Albion's commercial cars for the past decade or so.

In this system a multiple pump delivers oil directly to each cylinder and bearing in a predetermined quantity, fresh and of full body and only just so much as that particular bearing can consume. There is, therefore, no waste or surplus, and the sump carries no waste of any description: in fact, were it not for the ingress of grit, an open crankcase could be used. From all this, then, it would seem that there is still much to learn about that apparently simple subject, lubrication. So when may we expect some attention to this feature from our manufacturers?

TO the boys who are enriching the glory of Britain; to the boys who are honouring their illustrious sires; may your guns on the blood-stained sod of the Somme, on the Italian heights, over Africa's monotonous veldt and Egypt's burning sands, Salonica's sea-girt soil and Palestine's plains, around our own coast and on every deck that honours the good old flag, speak their loudest, silencing the Hohenzollern and blasting Prussianism to the winds. May you bring peace to our old planet and return safely soon to your Homeland, to the joys that the open road holds for you, and to us. This and nothing less than this is the only wish of

COOEE.

AN AERONAUTICAL PRODUCTION SCHEME.

It is believed that Great Britain possesses large untapped resources in the way of highly skilled engineering labour and machinery capable of aeronautical production, and that these minor sources might be linked up to form a business-like organization in direct contact with the great War Departments. To this end, therefore, all engineers, wood-workers, and heads of workshops of allied trades who are in a position to attempt the production of aircraft parts are invited to communicate with the Aeronautical Institute of Great Britain, 3, Arlington Street, St. James's, London. The latter will then co-operate with the authorities and larger manufacturers with a view to finding out how these resources may be utilized



An American rider shows the art of trick-riding with a machine fitted with side-by-side bucket seats.

WOMAN & HER MOTORCYCLE.

A Disadvantage of Silent Machines.

I SEE that the enthusiastic owner of a Henderson "four," embroiling himself in the controversy: "Will four cylinders destroy the sport?" now raging in the correspondence pages of this journal, recently wrote in disparagement of the "machine-gun type of engine," as he calls it. Now, I am as much against the cut-out fiend as anyone who has lived long enough near a street bearing much traffic to know how maddening the noise of it may be. There is one drawback, however, to the practically noiseless motorcycle which, although it may seem fanciful, has caused me enough trouble to lead me to consider it insuperable; at least, from the point of view of town riders. When riding in thick traffic on the light-weight or two-stroke, which is the usual mount for women, the only method one has of knowing whether the engine is running or not is by the sound of the exhaust. It is exceedingly annoying, when stopped perhaps for a traffic block, to find when one wishes to move on again that the engine is "dead" through not having been given enough throttle. Of course, when the rider is completely familiar with her machine she may be expected to know the exact settings of the throttle required, but the sensation of being lost in the roar all around when the sound of one's own machine can no longer be heard is to my mind a very confusing and altogether unpleasant one. We go more by the sound of the engine than by any

ARE SILENT MACHINES AN ADVANTAGE? —COAL-GAS FOR WOMEN MOTOR-CYCLISTS—THE FIRST FEMININE ASCENT ON GAS OF ALMS HILL. :: :: ::

other symptom. Unlike a dumb animal, it can make known to us orally whether it is fit or not, and the ear of the trained rider is attuned to the smallest difference in the timbre of the explosions. She depends on just such small signs to guide the manipulation of the throttle and air lever, not to mention the oil supply. On my own 2½ h.p. Douglas, familiar as I am with its needs, it has often been impossible to tell whether the engine was knocking or not when riding slowly through London streets, and as I have a constitutional dislike to racing it, no doubt knocking has often occurred. Imagine riding through roaring London on a machine as silent as that which Captain Long, in his letter, apparently sighs for!

Silencers and Sidecars.

An improvement which could be made in the silencing arrangements of many machines, however, has regard to the comfort of the sidecar passenger. Nearly every motorcyclist sooner or later attaches a sidecar to his machine, but this is a probability which the manufacturers apparently still fail to recognize. As often as not the silencer pipe is led directly between machine and sidecar, finishing up just below the ear of the unfortunate passenger, who may be thankful if she escapes induced deafness. In other designs the exhaust is spurted out on to the road, so that in dry weather a cloud of dust is sent up into the passenger's face. In their efforts to divert the unwelcome



Recently we published some details of the work with the Belgian Army of two plucky English lady motorcyclists, the Baroness de T'Serclaes (formerly Mrs. Knocker) and Miss Mairi Chisholm. Above they are shown with two Douglas machines, which they use in a Flemish village.

Woman and Her Motorcycle (contd.).

attentions of exhaust gases from the rider, manufacturers appear to forget the passenger altogether. In view of the inevitability of the latter one would have thought that some provision would have been made towards rendering the sidecar as immune from exhaust annoyances as the driver's seat.

The First Feminine Gas User.

What I believe to be the first gas-driven sidecar outfit fitted for a lady's use was shown to me recently and inspired me with much envy. This combination belongs to Mrs. Elee, who is carrying on the business of Messrs. W. Elee and Co., Ltd., 16, Bishopsgate Avenue, London, E.C. 3, in the absence, on active service, of her husband, "Billy" Elee. The combination is a 5-6 h.p. Royal Enfield with a great, roomy sidecar, and the gas bag is supplied by the Wilton Carriage Co., of Croydon. It is carried on a tray over the sidecar, very similarly to that fitted to the Zenith belonging to a member of our staff. I was informed that the Enfield runs excellently on gas, and for a busy woman like Mrs. Elee the relief of being immune from petrol restrictions and worries must be immense. Some weeks ago I pleaded for a pioneer to lead the way for feminine gas-bag users and prove that a gas-converted outfit is not an impossible proposition where the woman motocyclist is concerned. Is there any reason now to hesitate?

The Alms Hill "Gas Climb."

Who will be the first feminine rider to surmount Alms Hill on gas? The forthcoming climb provides a chance hitherto not offered to women motocyclists to show their skill on a hill, and I hope some of my readers will avail themselves of it. In the old days, when the sporting side of the pastime was well attended to, the men had it all their own way. Invariably the same names occurred upon every "event" attendance list, mostly consisting of those of professionals, in the light of whose finished skill promising performances by we poor amateurs would have gone

unnoticed. Few of the old riders, alas! will be present at the coming climb, however, and in their absence the ladies might, as they wished, have it all their own way. I shall be very pleased indeed to receive the name of any lady willing to attend, and though not qualified, by a gas bag, to attempt the climb myself, I hope to be present to observe the performances of those of my readers who are.

Touring Bars for Women's Use.

Perusing a paragraph in last week's issue, devoted by "Cooee" to the time-worn question of handlebar design, I was pleased to see that the ordinary touring bar received from this writer its meed of appreciation so often drowned in clamorous praises of the so-called "knatty" T.T. type. Personally, although as much addicted to a speed burst now and then as anybody, the T.T. bar leaves me absolutely cold. I have sampled a number of handlebar types, among them being a pair of semi-T.T. fitted to a spring-frame Edmund. I may honestly say that the advantage of the spring frame, then a novelty to me, was entirely overshadowed by the discomfort experienced through these handlebars. Steering became an acute strain upon the wrists after a few miles; it was almost impossible to balance the machine at low speeds, and I consider myself lucky to have escaped permanent spinal curvature from the position in which these bars made it necessary to ride. I never got used to them, and was glad to be rid of the machine solely upon their account. It may be pointed out that the design was bad, but since then I have tried several pairs of T.T. bars and none of them seems to me to hold any advantage for ordinary motor cycling over the touring type, much as the former are sought after. Riding with bowed back and cramped lungs does not appeal to me, and I cannot but think that the position rendered necessary by such handlebars is exceptionally bad for women riders. I have found the ordinary touring form of bar meets my needs admirably, and for easy balance, feather steering, steadiness in grease and general comfort these cannot be surpassed.

BOADICEA.

MAGNETO

MAGNETOS have reached such a state of perfection that riders hardly give them a thought nowadays—until they fail. After a few years wear, and unfortunately sometimes sooner, the intensity of the spark given from a magneto gradually diminishes. This is due to the magnets gradually losing their magnetism, when they have to be re-magnetized to put matters right. The magnets are, perhaps, the most important part of the magneto, and a brief description of the processes employed in their manufacture will probably be of interest to many readers.

A tungsten steel, having from .4 to .6 of carbon, is generally used. Chromium up to 2 or 2.5 per cent. may be present in this material. The forging of the magnet is done with as little working of the material as possible and at the lowest convenient temperature. After forging to normalize the steel, it is heated to 900 degrees C., cooled to 750 degrees C., maintained at this temperature for a time and then cooled off. To harden the magnets, these are maintained at a temperature of about 950 degrees C. for a period not exceeding five minutes, then cooled to about 700 degrees C. and quenched at this temperature in brine or oil at a temperature of under 20 degrees C.

The magnets are now matured by boiling or steaming them for 10 or 12 hours or by heating them to 60 degrees C. for 20 or more hours. When magnets are intended to be used for any particular temperature and are required to be as constant as possible at that temperature, they are sometimes subjected to a number of cyclic processes, alternately heating them to a

MAGNETS.

few degrees above and cooling them to a few degrees below that temperature at which they are to be used.

The magnets are magnetized by means of an electro magnet, or sometimes by a magnetizing coil. They are generally magnetized to saturation point, which is the highest degree of magnetization possible. Some advantage is obtained by reversing the magnetism a few times. Nothing is gained by magnetizing them for a long period; the result depends upon the maximum magnetizing force applied and not upon the duration of its application. In the final magnetization the current should not be switched off suddenly, but should be diminished gradually to zero.

When dismantling a magneto for overhauling, the magnets should be handled very carefully and not dropped or knocked in any way. A piece of soft iron as a "keeper" should be placed across the poles during the period over which they are removed. Of course, if they are going to be remagnetized these precautions are unnecessary.

When replacing the magnets like—i.e., similar—poles should go together. It is a common mistake, when reassembling after an overhaul, to replace the magnets wrongly. If they are stamped no difficulty will be experienced; both N's being pieced together. If not stamped, the like poles may be found by placing the magnets side by side; the correct polarity is attained when they repel each other. Of course, recourse to a pocket compass will easily enable anyone to replace them correctly.

L.J.Y.

THE EDITOR'S CORRESPONDENCE.

The Editor is not responsible for, neither does he necessarily agree with, the views taken by correspondents. Both sides of any topic are given equal publicity. A pen-name or initials can be given for publication, but the writer's full name and address must always be sent. All communications should be written on one side of the paper only.

Not in Business Hours.

I think the latter part of the paragraph which appears on page 114 of your issue of 25th December, in which you say that Mr. Bridgman and myself are "on the road more often than at the Indian wigwam," is apt to be a little misleading. With the exception of such times as we have daylight raids, special constabulary work very seldom calls either Mr. Bridgman or myself away from our business. H.Q.C.D. work is mostly confined to night duty. Therefore, we can practically always be found at our usual place of business during business hours.

W. H. WELLS,
Manager, Hendee Manufacturing Co.
366-368, Euston Road, N.W. 1.

Better Than Vulcanizing.

I have just received your issue of 2nd October, and have read your advice concerning "Patches without Solution in the Tropics," in response to "W.J.L." (Cumberland). When I was in England 14 months ago, I had considerable trouble with ordinary patches, which became leaky as a result of the heat generated by friction of the tyres on hot and dusty roads. I overcame this difficulty by purchasing "Simplex" patches. These are already coated with a compound, and when warmed on the top of a cylinder and placed over the puncture (which has been previously cleaned in the ordinary way) under pressure for a few minutes, it will be found impossible to move them. This method will prove to be much cheaper and quicker than vulcanizing, and as I have used these patches with every satisfaction, I can recommend them to anyone.

C.T.
Salonica.

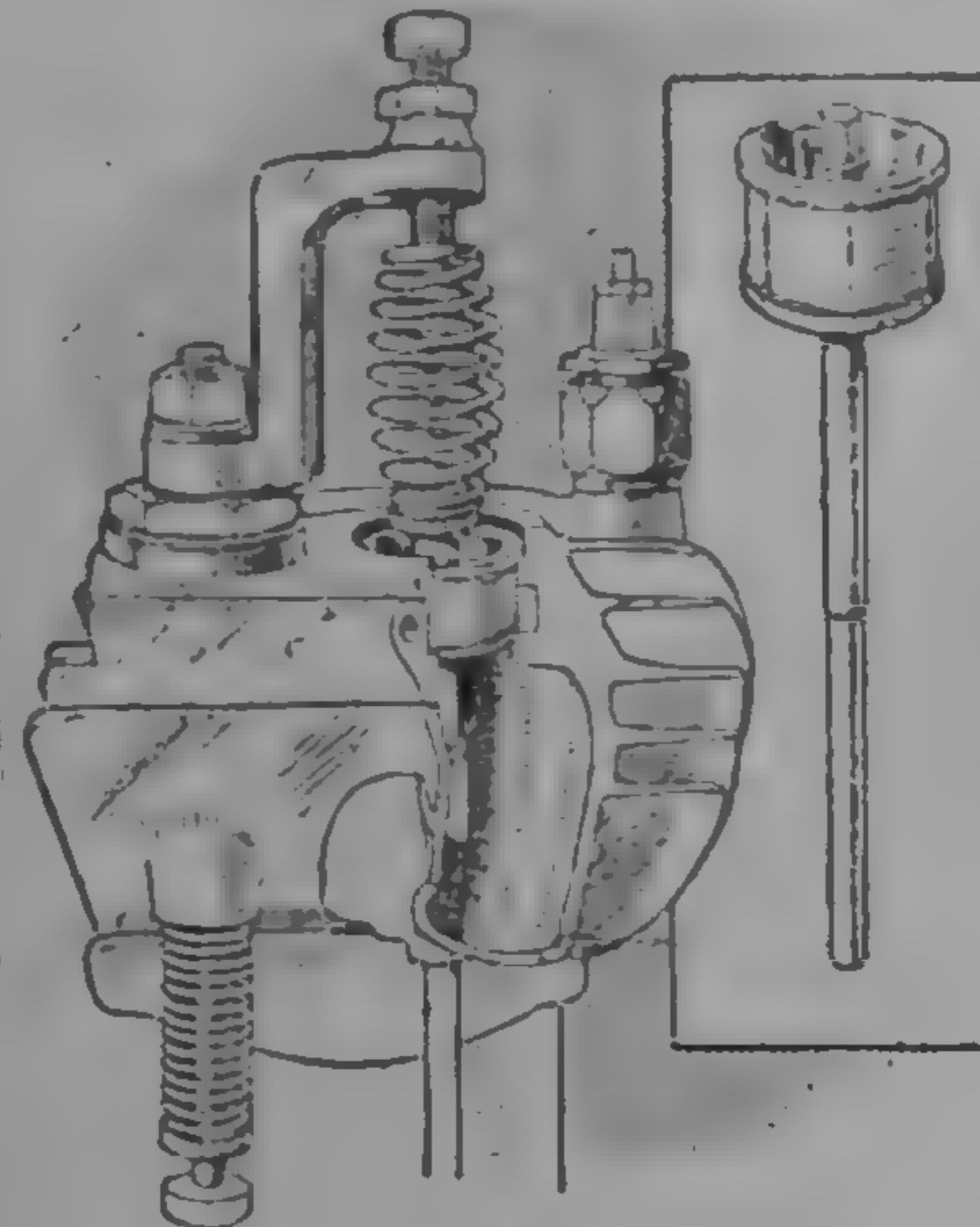
The De Lissa Valve.

I have read the article "Are Mushroom Valves Ideal for Motorcycles?" by "B.C." in your issue of the 11th December, and was much interested. There is one point, however, with which I am not quite in agreement.

"B.C." says that I have not "overcome the very considerable loss of power which arises from the method of operation." The valve is operated in a similar manner to the mushroom type, but there is a saving in power, as the explosion on this type of valve tends to lift or open the valve, thereby to a certain extent saving power. A strong adjustable spring is required, and it is necessary to compress this spring to prevent the valve from being lifted when, say, climbing with full throttle, but not when the ignition is too far advanced. The ordinary mushroom valve is being held down by a considerable pressure, caused, of course, by the explosion, and the valve has to be lifted against this pressure. The earlier the opening, of course, the greater the pressure.

During the process of cooling more of this valve is exposed to the heat of the gases, but it is necessary. This extra surface enables the heat to be taken away from the hottest part, and also allows a better exit for burnt gases, as on being opened it does not baffle them as does the mushroom valve, but allows the gases as it lifts to slide past it and out of the port, as it were. If an engine with these valves is run under load with the exhaust pipes dismantled, no sign of fire will be seen, even at 5000 r.p.m., and a great number of revolutions is obtained, as the valves are kept on the cam owing to the strong spring. This, of course, is not possible with the mushroom valve.

I have also seen "H.G.C.'s" (Liscard) remarks in your issue of the 18th December, in connection with grinding in this valve, but I would point out to this gentleman that it is quite easy to grind in by using the usual compound. When both



The De Lissa exhaust valve

sealings are ground smooth, it is necessary to clean all traces of the grinding compound from the top seat of the valve and its seat in the cylinder. Some fresh compound should then be put on the lower seat and the valve ground in for a few minutes until it will not grind further, and is then hanging on the top seat. This gives the valve the correct clearance, and without it the engine would not give its full power for about 80 to 120 miles, but it eventually puts itself right, and remains so.

If the air intake on the carburettor is fitted with gauze, the valve will not pit, as it does not become hot enough to be sufficiently soft to burn or pit, but should the gauze be taken out, particles of flint and other hard road material which are drawn into the cylinders are sufficient to press pits into the lower face of this or any mushroom valve.

OSBORNE DE LISSA.

Harrow Road, Willesden Junction, N.W.

The Advantages of the "Four."

It is a pity Mr. Hitchcock's mechanical knowledge is lacking. I have ridden motorcycles and driven cars for 20 years; my first car had a steam-driven two-cylinder engine with a double-acting slide valve, which made it actually a four-cylinder in comparison with petrol engines. No petrol car could have run as sweetly—there was no vibration, there were no gears or clutch; drive was positive by chain to the differential. My next car was a six horse-power Rover with one cylinder. Every impulse of the engine was transmitted to the driving seat, and after some experience I came to the conclusion that no pleasure is to be derived from driving one-cylinder cars a long distance. My third car was a four-cylinder 16-20 Rover, delightful to drive because of the even and steady pull of the four cylinders. The next was a single-cylinder motorcycle, a powerful machine. The vibration was worse than in the six horse-power car. Then I had a four-cylinder motorcycle, and the beautiful pull of the four-cylinder, in comparison with the single, made motor cycling a pleasure. I would prefer a six or eight-cylinder machine if such types were made.

Mr. Hitchcock makes a special note of "action." Quick acceleration is far more positive on a "four" than on a "single," for the simple reason that you have practically no dead centres; I can walk with my machine on the road with all four cylinders working. When Mr. Hitchcock has had a little more experience he will realize that a "four" is to be preferred to a "single."

T. BROWN.

High Field, Keighley.

Thrust on the Pullin Hub.

May I point out that in the article on "Hub Designs" in your issue of 18th December the statement is made that the end thrust on the Pullin hub is taken through the rollers. It appears from your

drawing that the thrust is taken by the flanges inside the hub rubbing against the sides of the inner roller races. There also appears to be nothing to "nip up against" when the forks tighten up against the sleeve on which the roller bearings are mounted. Should there not be a distance piece between the inner races?

A.P.Q.

West Hendon, London, N.W.

Slow, But Sure.

While touring last summer I exhausted my petrol licence and had to leave the outfit, returning to town by train. The Petrol Control Department refused to renew the licence and would not give a definite decision as to whether I might have enough petrol to bring the machine back. Eventually I managed to get it back—how, I will not say. Just three months after this I received notification from the authorities that they could not grant me petrol for the journey.

L.E.

London, N. 3.

Correspondence (contd.).

The Four-cylinder Motorcycle.

I was interested to read "Cooee's" remarks regarding the Henderson, and many motorcyclists will be glad to know that at least one British concern is experimenting with an English-produced four-cylinder motorcycle. It is high time that something was done in this direction, and the amalgamation of the Henderson and Excelsior Cos. should wake up the British manufacturers. No one who has had any experience with the Henderson will deny its charm both as a solo and a sidecar mount. The Excelsior Co. will, no doubt, be in a better position to produce this machine than the Henderson Co., and I should not be surprised if they devote more attention to the four-cylinder machine than to the Excelsior twin. When import restrictions are removed we may expect a large number of Hendersons to be sent over to England, and they will not lack riders. It will, therefore, be very interesting to see what steps the British manufacturers will take in competition.

J.D.

Finchley, N.

Gassed!

I wonder what is the real position now with regard to gas. This is a thorny subject, not only to motorists, but to the householder. Several by-products are taken from the gas for munitions, and I presume the gas companies are paid for these. Why, therefore, is the price continually increased in inverse ratio to the reduction in quality, which is now so poor that naked gas lights are practically useless?

This does not seem a very important matter in view of other difficulties arising out of the war, but from the motorist's point of view the gas question is even more puzzling. Not many months ago an official request appeared in the Press that as much gas as possible should be used for all purposes, with the object of increasing the supply of by-products used for military purposes. This seemed a reasonable and sensible arrangement, but immediately it is discovered that gas can be used as a substitute for petrol, we are told that its use must be restricted. Then those delightful ladies who look so well in expensive furs and keep nice little pet dogs have an opportunity of writing to the daily Press protesting about the waste of coal-gas for "joy riding." Perhaps it is because motors are a source of danger to the little pet dogs! However, the official attitude towards anything connected with motors encourages these effusions from narrow-minded people. Personally, I cannot make head or tail of the whole business. I notice in the motoring Press that a large number of gas companies is advertising that they can supply gas for filling containers, and this does not suggest any shortage. On the contrary, it would seem that the output in many places is ahead of the demand. It is surprising that one of these companies is the South Metropolitan Gas Co., which serves an enormous district in London. What I want to know definitely is—are we to economize in the use of gas or not? I suppose it is too much to ask for a definite decision regarding anything at the present time.

O TEMPORA, O MORTES!

Flackwell Heath, Bucks.

A Substitute for Carbide.

I certainly covet "Boadicea's" pound of carbide, but with all due respect to the lady, I do not like her substitute of a candle. I tried it, and the grease dropped on to the burner, which is now, in consequence, out of order. Not satisfied with this, the grease splashed all over the mirror at the back of the lamp. It does not require a large amount of ingenuity to clip a small pocket flash-lamp bulb to the burner in the headlamp and connect this up to three large dry batteries, which can be carried on top of the tank. A small electric rear light can generally be made in a similar way. Care should be taken to use large dry cells, as small ones soon tire if kept on for more than a few minutes.

LITTLE JOHN.

An Army Test.

Although three years ago a lady car driver used to put me in a state of fear and trembling, I never met a lady motorcyclist who did the wrong thing. I can now ride quite com-

fortably in a sidecar driven by a woman without expecting every minute to be my last. My niece, who rode her father's old Raleigh motorcycle before she was old enough to have a licence, is now an A.S.C., M.T., car driver, and she corroborates the statement, made in your Christmas number, that examiners always ask the question: "Have you ridden a motorcycle?" The only six who passed the test the day she was examined were all motorcyclists, and none of those who failed had ever been on a motorcycle. For those who wish to become car drivers the moral is obvious.

T.F.P.

Ilandudno.

Redundant Summons.

I notice in the "Carnarvon Herald" that three summonses were issued recently at Valley, the first for riding a motorcycle without a front light, the second for riding the machine without a red and rear light, and the third for riding it without light to distinguish the letters, etc., on the identification plate. A fine of £1 was imposed upon each summons. Surely the

third charge is somewhat redundant, having regard to the first and second? The carrying of a front and rear light upon a motor vehicle is enforced in order that they may fulfil the double duty of warning other vehicles and illuminating the identification plates, and to separate these two obligations so that their non-observance may constitute two distinct offences seems unnecessary. This is a point which might be taken up by the motor associations with a view to future cases of the kind.

C.R.S.C.

[We have often drawn attention to the unfairness of making two or more offences out of one, as is common practice in motor cases.—Ed.]

Motor Cycling and the Cinema.

"An Old Reader," in his eagerness to get in a snub for the journal he buys, rather misses the point in his letter appearing 11th December, regarding the paragraph which was published recently in MOTOR CYCLING under the above heading. So far as I can judge from plain English, your contention was not, as "An Old Reader" seems to think, that the cinema should be abolished, but that motor spirit should not be granted for the motorcycles, cars and aeroplanes often used to increase the thrills of a screen "drama." In this I am quite in agreement with your contributor. May I point out, however, that nearly all the long reels of this type are produced in America, where petrol is not yet at a premium, as it is in England. After the war there will, I believe, be a great future, both there and in England, for trick motorcyclists to act in "thrill" pictures by performing spectacular stunts on their machines for the screen. LIGHT COMEDIST.

Acton, W.

The Value of the Film.

The opinions of "L. Agar," concerning "puerile amusement," "development of juvenile crime," etc., are not borne out by facts. We have the report of the Cinema Commission and the statement of the Chief Inspector of the L.C.C. Education Department as to the value of the "pictures." As to the 25,000 persons employed in their production, this estimate surely refers to the number engaged in showing "pictures," and as the usual staff of a cinema theatre consists of a manager, over military age, a lady or a discharged soldier operator, and a few girls as cashiers, considering the audience they entertain the labour wastage is not great. The amount of petrol used is very small. Quite 80 per cent. of the theatres obtain their electricity from the town mains, and others generate from a gas engine.

Germany realized the value of the film for propaganda purposes in neutral countries at the beginning of the war, and the Allies are now using the same means of advertising their war aims. A very large amount of pleasure is conveyed by the cinema to munition workers, soldiers and sailors. Certain motor engineers also have utilized the cinematograph to study the action of cams and springs in their engines.

GEORGE Woods-TAYLOR,
War Office Topical Budget, Official Cinematographer,
76-78, Wardour Street, W. 1.

▲23

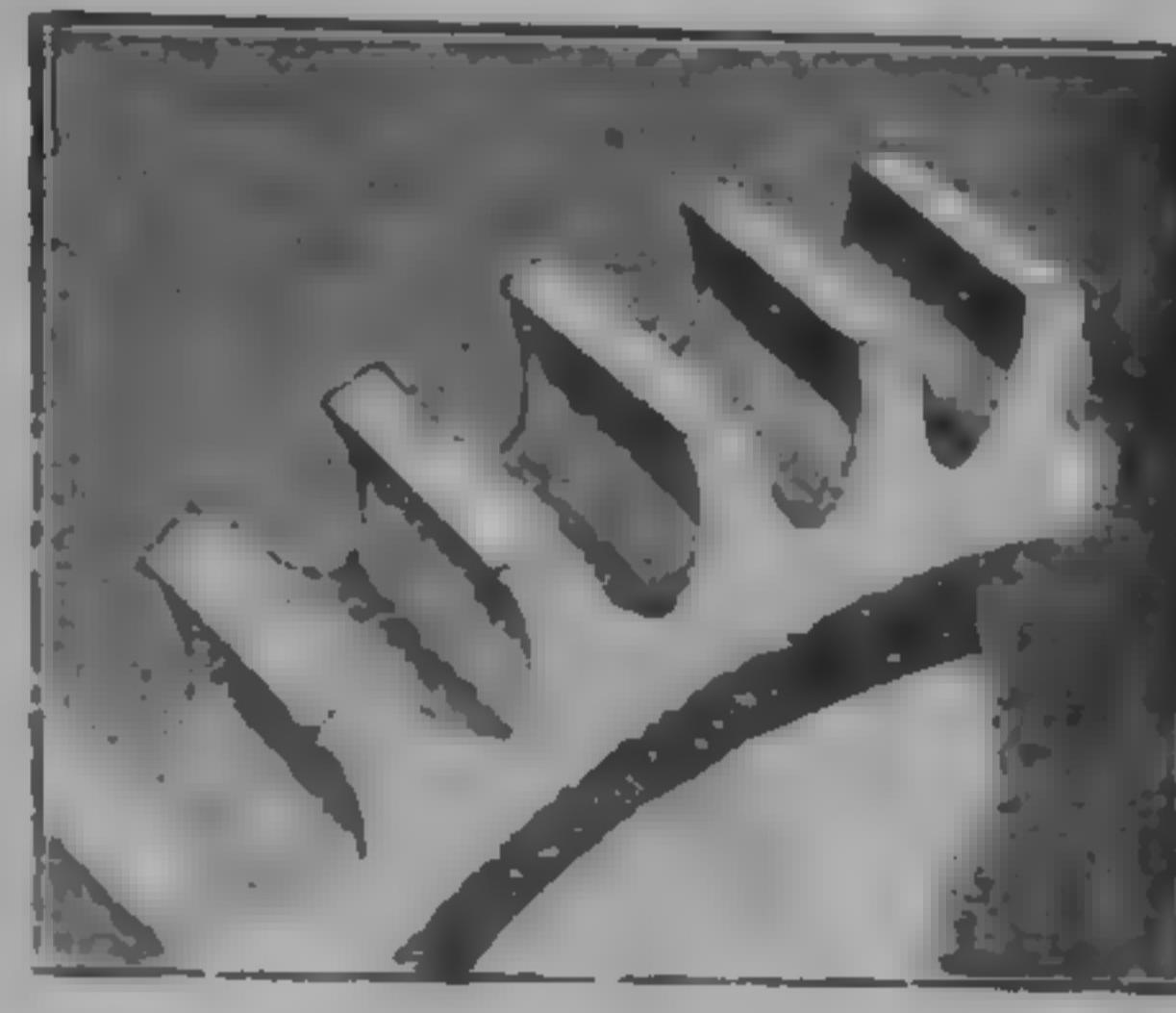


Fig. 1.—A badly-worn gear tooth will assume the shape shown.
Fig. 2.—Continuous gear changing will cause the ends of the teeth to be ground away.



TECHNICAL.

LEGAL.

INFORMATION & ADVICE

PURCHASE.

COAL GAS.

RULES:—Questions on technical matters, advice in selection of a new machine, etc., will be answered in the next issue after receipt of the inquiry so far as possible. Letters or postcards must be marked "I. and A." on the top left-hand corner. Questions must be numbered, and a copy kept for reference. Machines upon which an opinion is sought should be numbered. Replies can also be sent by post if a stamped addressed envelope for that purpose is enclosed. Routes and legal queries must be kept separate from others.

E.B. (Grantham).—We can recommend the fitting which you mention as being a decided aid to easy starting.

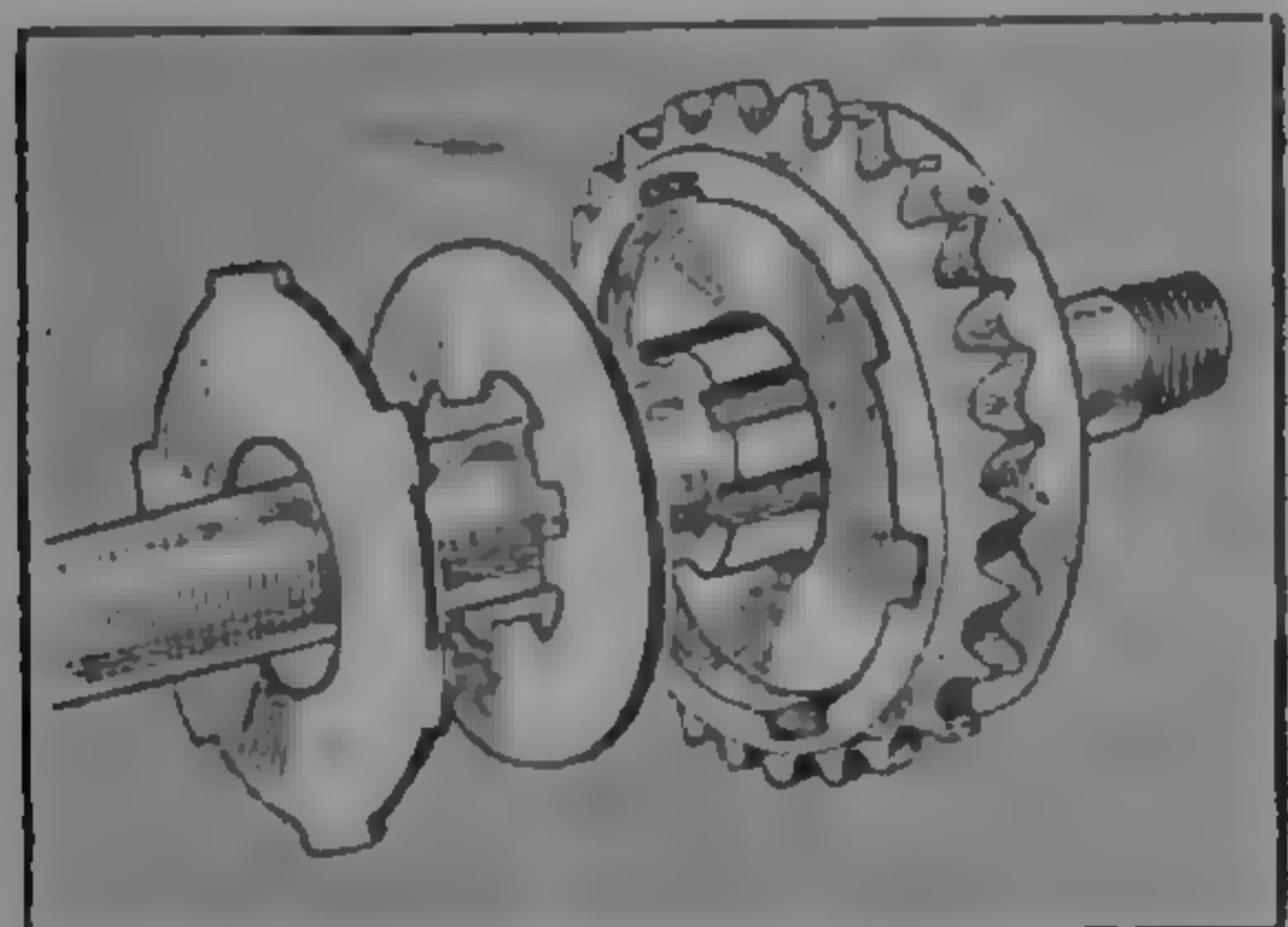
E.J.H. (Harrogate).—We can certainly recommend the XL-All pan saddle; this should cure your trouble when on long rides.

H.N. (Broadstairs).—In all probability your difficulty is caused by carburation trouble. You should completely dismantle the carburettor and make certain there are no particles of foreign matter or water left in it before you re-assemble.

Filling Stations.—**H.D. (Weymouth).**—(1) The use of coal-gas is not at present restricted in any way. (2) We do not know of another map of gas-filling stations to carry you on beyond Weymouth. (3) There are gas works at Wareham, although we do not think that arrangements have been yet made for filling gas bags here.

Mixed Queries.—**W.M.C. (Aberdeen).**—(1) Yes; this certainly should tend to draw the heat away from the engine. (2) This should prove perfectly satisfactory. (3) It would be better to leave the bottom intake open. (4) It is necessary to produce your registration licence to show that you are the owner of a machine before you can obtain a permit. (5) You would also need your pass. When in Ireland you should address letters to the Petrol Control Department (Ireland), Dublin.

Clutch Slip.—**E.N. (Kensington).**—The clutch in your case is made up of a number of metal discs which are alternately keyed to the shaft and the driving sprocket. It is just possible that the reason for the continuous slip is that you are using too thick oil. You should thoroughly wash out the clutch with paraffin, and then put in fresh oil of very thin body.



A multiple disc clutch, showing the alternate discs, slotted so as to rotate with shaft and casing respectively.

Gas Queries.—**J.R. (Woodlesford).**—(1) A 50 cubic ft. bag should be quite sufficient for your 3½ h.p. Bradbury. (2) The size of the orifice into the carburettor should be no smaller than 9-32nds of an inch. This dimension must not be reduced anywhere between the gas bag and the orifice. (3) The air inlet should certainly be left open, as it is necessary to obtain a mixture of gas and air in order to obtain an explosion mixture. (4) You should be able to obtain sufficient power to carry a passenger in the sidecar. (5) Sail cloth would not be suitable. Particulars of making a gas bag appeared in our last issue. (6) The address you require is also contained in the article in question.

▲24

G.H. (Birmingham).—If there is any other means of obtaining the goods, you will be liable to be summoned for using petrol.

N.L.R. (London, S.W.).—We should advise you to communicate with the Y.M.C.A. headquarters, Motor Department, Tottenham Court Road, London, W.C.

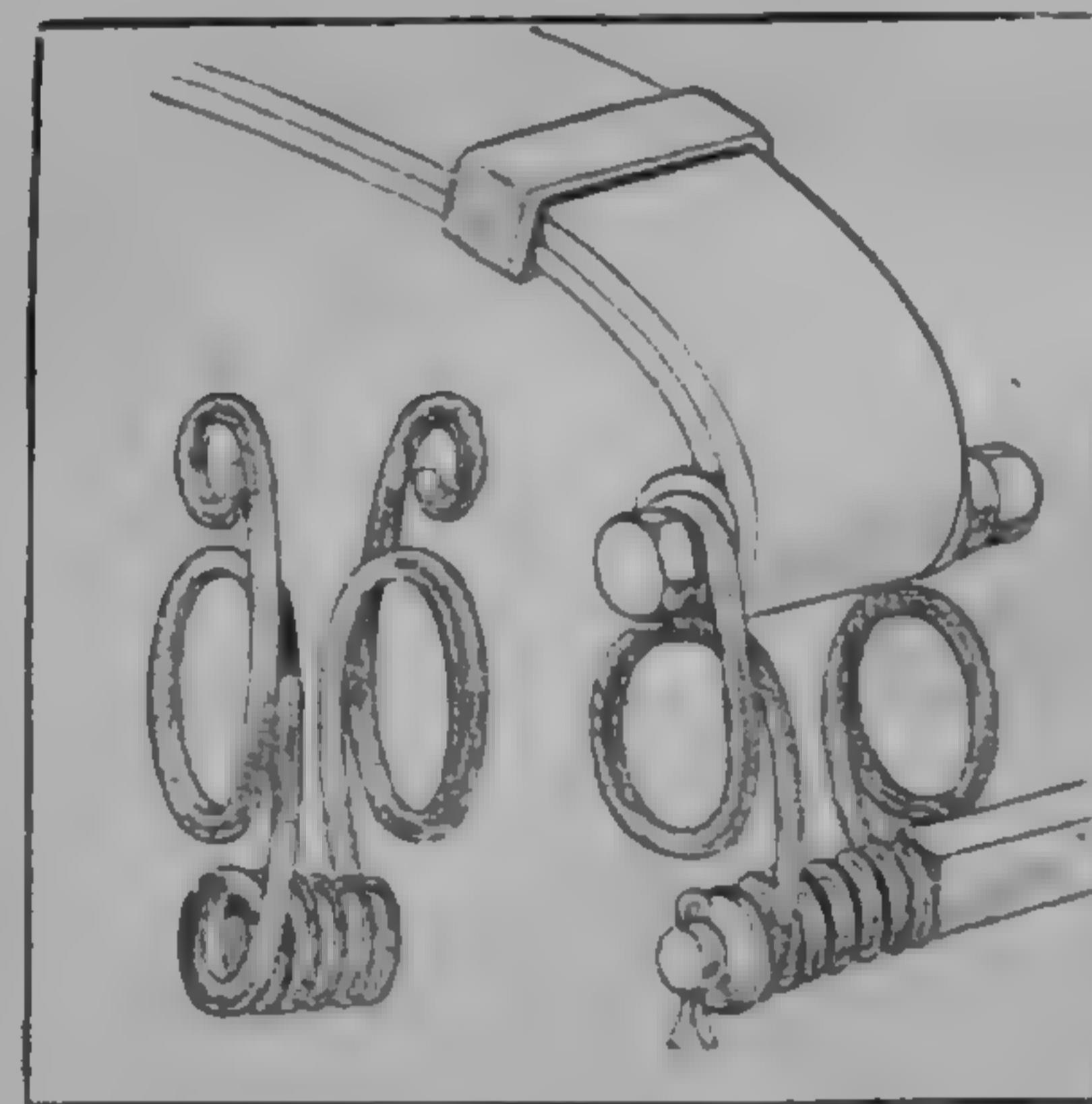
D.C. (Liverpool).—There is no reason that we can see why you should not use dry batteries, especially as you only require light occasionally for short distances.

G.L. (Birmingham).—Any of the three machines you mention would be suitable for the work you require it to do, and also we would include the Matchless and A.J.S. in the list.

S.W. (London, S.E.).—You would require a converter to use the waste current from your magneto for lighting purposes. You might possibly obtain this from A. H. Hunt, 115-117, Cannon Street, London, E.C. 4, and you would require a switch in order to use the battery when stationary.

J.H. (Bristol).—(1) This does not apply to officers and men on home service. (2) It would not be possible for you to obtain this permit. (3) We do not know of a firm marketing any other set for this purpose except a trailer, which could be obtained from Messrs. Rider Troward and Co., 78, High Street, Hampstead, London, N.W. 3. (4) £19 19s. Over 30 miles.

B.A.S. (B.E.F.).—The spring shackles which you mention were used on Montgomery sidecars some years ago. The address of the makers of the Montgomery sidecar is W. Montgomery and Co., Gosford Street, Coventry.



The spring shackle used on Montgomery sidecars.

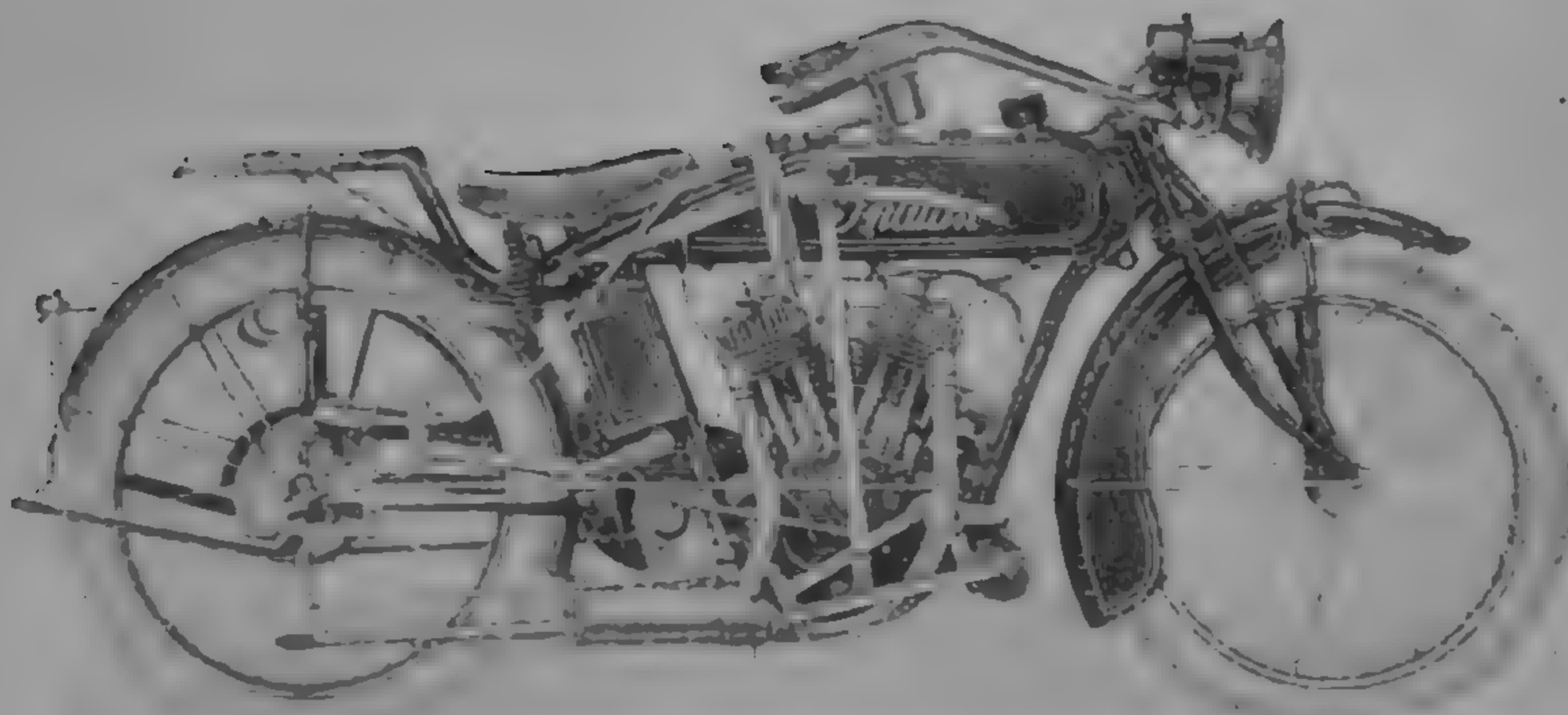
Gas Queries.—**A.J.N. (Weston-super-Mare).**—(1) suitably strengthened by stays from end to end, there is no reason, that we can see, why your cylinder should not stand a pressure of 40 lb. to the sq. in. (2) At 40 lb. pressure to the sq. in. it would hold approximately 25 cubic ft. of gas. (3) It would take a considerable time to fill with a large foot pump. (4) A reducing valve would be necessary. (5) You should be able to travel five miles on a full charge.

Coal-gas Queries.—**M.C.B. (Sheffield).**—(1) We do not think this material would be exactly suitable for the purpose of manufacturing a gas bag. (2) A bag of this size would have, approximately, a capacity of 135 cubic ft., and this should run your 6 h.p. Entfield 22 to 25 miles. (3) The wind pressure on a bag of these dimensions would certainly be appreciable. (4) The size of the orifice to the carburettor would be 9-32nds of an inch. (5) The best place to introduce the gas into a carburettor is through the air inlet. (6) It would certainly take some time to fill your container from this size pipe. (7) Particulars of a home-produced gas bag appeared in our last week's issue.

Replies cannot be answered by post unless a stamped addressed envelope is enclosed. Several replies have been held over, and some have still to be answered.

1918

Indian Powerplus



Which we trust will be a Post-War Model.

We regret that we are not in a position to supply motorcycles or send out catalogues at the present time, but when we are able to do so we will freely advertise the fact.

This applies to Great Britain only.



HENDEE MANUFACTURING CO.,

"Indian House," 366-368, Euston Rd., London, N.W.

Telephone: Museum 1648.

Telegrams: "Hendee, Euston, London."

AUSTRALIA, 109-113, Russell Street, Melbourne.

CANADIAN WORKS, 12-14, Mercer St., Toronto.

AFRICA, Indian House, 127-9, Commissioner

Street, Johannesburg.

Indian House, 579, West Street, Durban.

Indian House, Strand St., Port Elizabeth.

Since the saddle will make or mar your comfort awheel, its selection should always be regarded as a matter of the first importance.

Since you always find in any gathering of Motor-cyclists the

BROOKS

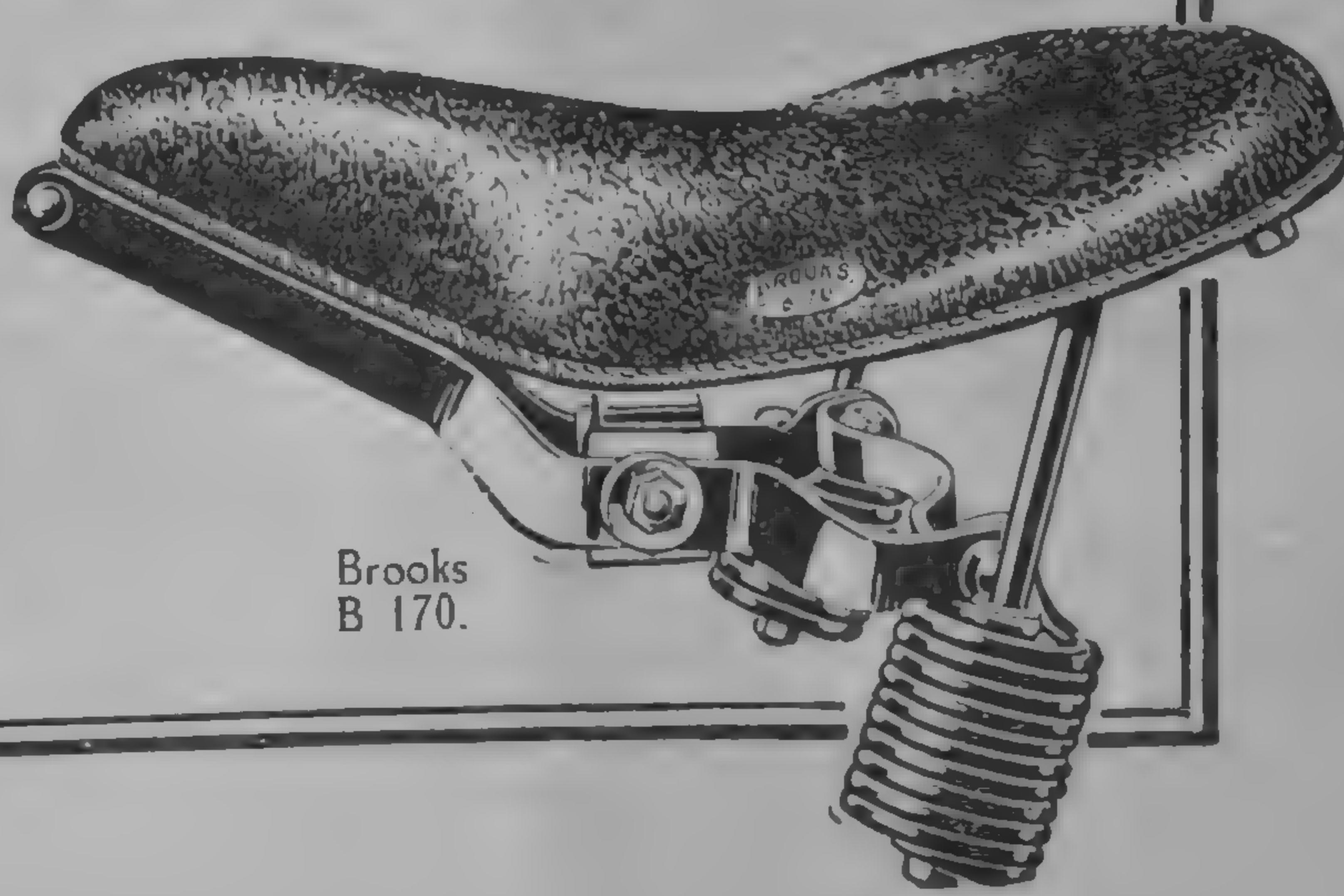
predominating, it is certain that it possesses merits which the majority appreciate.

That fact has induced thousands of riders to test a BROOKS, and those thousands make up that majority.

The Brooks Book is free.

J. B. BROOKS & CO., Ltd.
77, Criterion Works, Birmingham.

Brooks
B 170.



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Blackburne

The Single with the Outside Flywheel.

Motorcycles par Excellence

Our clients say they have solved the question of Flat twin *re* Single by "The Blackburne" with its large flywheel and even torque. Although these cannot be supplied, except by permission of the Ministry of Munitions, we are only too pleased to answer enquiries.

We have also a WAITING LIST.

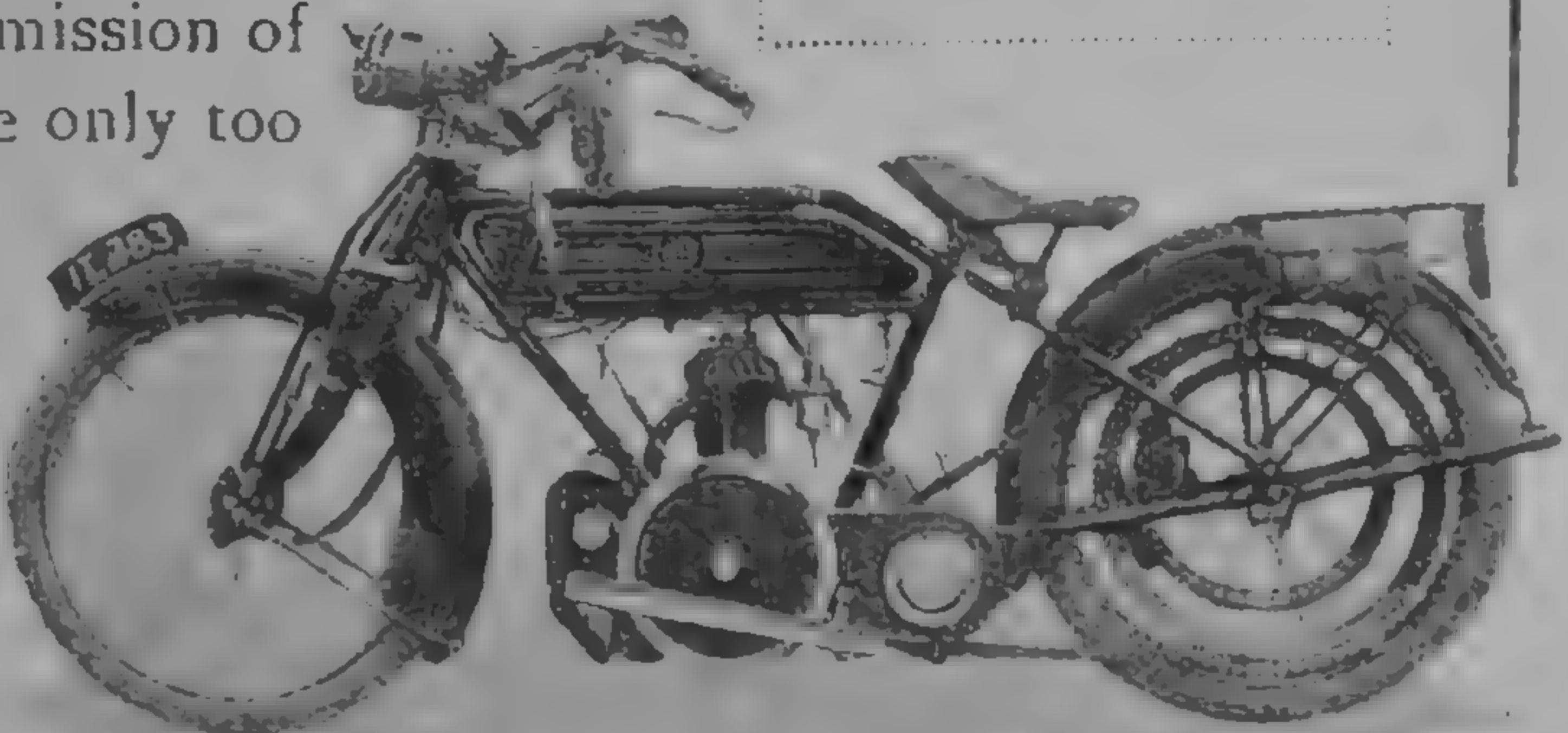
BURNEY & BLACKBURNE, LTD.,
TONGHAM, - - - SURREY.

Horse Power:
 $3\frac{1}{2} (85 \times 88 = 499 \text{ c.c.})$.

Specialities:
Detachable cylinder head.
Solid Crankshaft.
Heavy outside flywheel.

Gear:

Sturmey-Archer 3-speed countershaft with kick-starter.



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NOTE.—The Supplement will be found at the end of the book; it comprises the "Motor Cycling Mart," and contains many displayed advertisements in addition to the prepaid line announcements.

ELGE & CO.

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1917 Matchless Combination, 4hp, M.A.G. engine, spare wheel and tyre. As new, only ridden three times.	£120
1916 Harley-Davidson Combination, 7-h.p., electric model.	65
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1916 Powerplus Indian Combination, spring frame, dynamic lighting, T.T. bars, unscratched.	85
1915 Indian, 3½ h.p., and Swan torpedo sidecar, lamps, horn, speedometer, finished throughout yellow.	45
1914 Matchless Combination, 4½ h.p., M.A.G. lamps, horn, speedometer, luggage grid, just been thoroughly overhauled.	68
1916 B.S.A., 4½ h.p., chain cum-bolt and Miltord sidecar, lamps, horn, etc.	65
1915 Hazelwood Combination, 5½ h.p., J.A.P. engine, B.S.A. clutch and kick-start, lamps and horn. Good condition.	40

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1917 Zenith Gradua, 4½ h.p., clutch, kick-start, as new, only ridden a few miles.	£13
1917 Rover, 3½ h.p., T.T. Phillips polley, lamps, horn, as new.	50
1916 Norton, T.T., B.R.S. model, lamps, horn, speedometer.	50
1911 Triumph, 4½ h.p., lamps, horn, speedometer, very good condition.	35
1917 New-Imperial, J.A.P., 2½ h.p., 2-speed, clutch, kick-start, T.T. bars, as new. Bargain.	30
1916 Allard's Allan, 2½ h.p., 2-speed, clutch, lamps, horn. Splendid condition.	28
1912 Douglas, 2½ h.p., single-speed, lamps, horn, speedometer.	15
1916 Allard's Allan, 2½ h.p., single-speed, lamps.	15

15-16, Bishopsgate Avenue,
Camomile St., London.

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"Elegance,
London."

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1915 E motor (twin) clutch, kickstarter, new back tyre, overhauled, Lucas lamps, new	47	10	0

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1916 ENFIELD Comb., grand order, equal to	What offer?
1916 A.J.S. Comb., spare wheel (tyred), brass, screen, bug, carrier, splendid condition	£90 (nr. offer)
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1918 T.T. TRIUMPH, overhauled, frame enamelled, plating good	£7 10 0

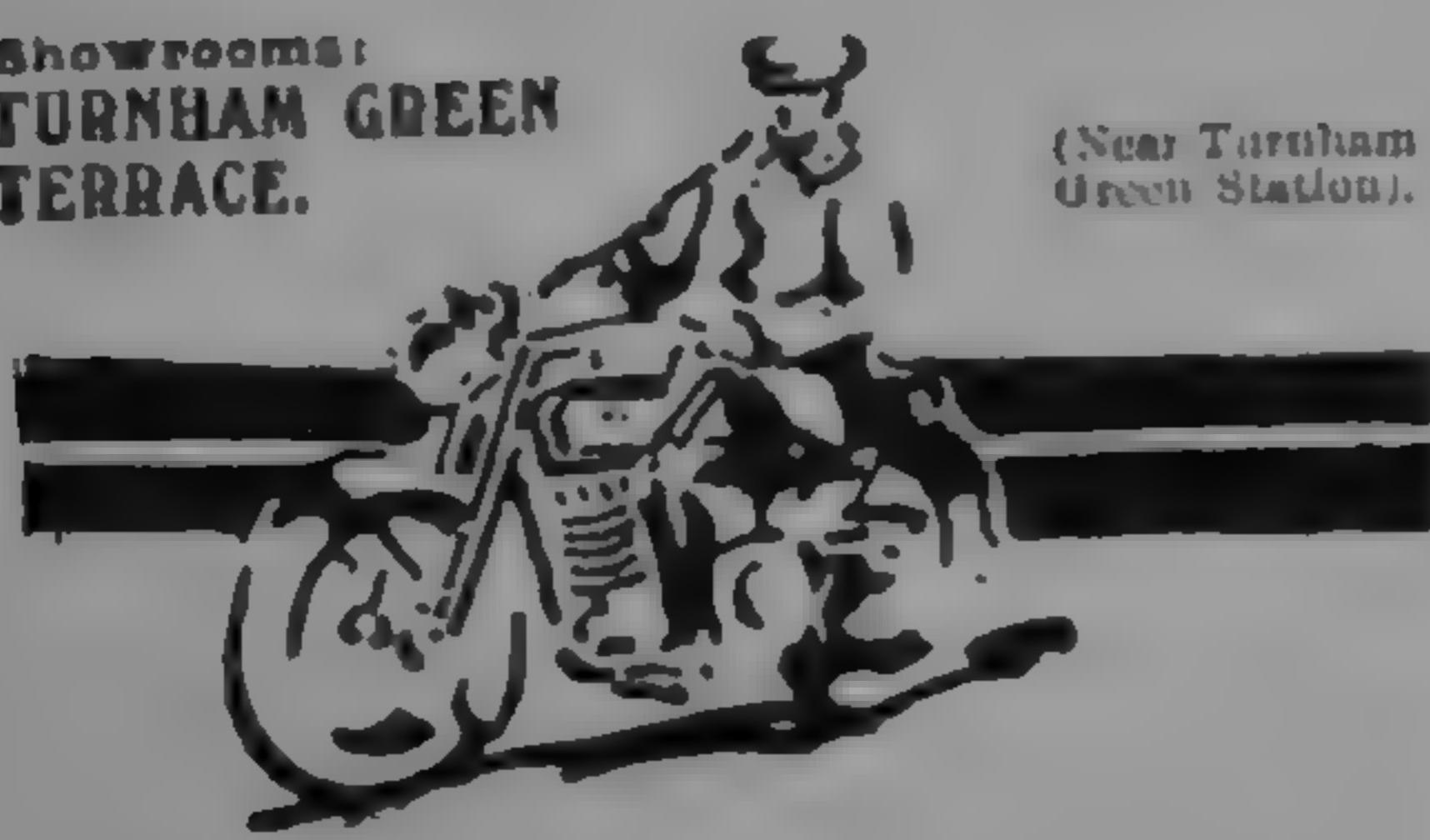
SIDECARS.

1916 PHOENIX, Harley-Davidson model	26 10 0
1916 PHOENIX, Harley-Davidson sporting	£14 (nr. offer)

CARS or MOTORCYCLES taken in part payment.

Showrooms:
TURNHAM GREEN
TERRACE.

(Near Turnham Green Station).



RIDER TROWARD and CO., 31 and 38 High St., Hampstead, have for sale the following guaranteed machines under 30 guineas in price:—B.A.P., 1910, 6hp, 2-speed, 19 guineas; F.N., 1912, 2½hp, 2-speed, 11 guineas; F.N., 1913, 5½hp, 2-speed, 23 guineas; Lincoln Elk, 1911, 3½hp, variable gear, 19 guineas; O.K. Junior, 1916, as new, 2-speed, 23 guineas; Rudge, 1912, 3½, clutch, 17 guineas; ditto, 2-speed, clutch, 19 guineas; Rudge, 1913, T.T., Philipson, 2 guineas; Rudge-Multi, 1913, T.T., 26 guineas; Rudge-Multi, 1914, 29 guineas; Rudge-Multi, 5½hp, 1914, 29 guineas; Torpedo-Precision, 1914, 4hp, clutch, 17 guineas; ditto, 2-speed, clutch, 23 guineas; Triumph, 1911, standard, 17 guineas; Allon, 1916, 2-speed, 2-stroke, 29 guineas; Bradbury, 1912, 4hp, 2-speed, clutch, 19 guineas; Bradbury, 1913, T.T., 4hp, 22 guineas; B.S.A., 1913, 3½, 2-speed, clutch, 21 guineas; Coventry Eagle, 1916, 2-speed, 2-stroke, 27 guineas; Crescent, 1917, 2-speed, 2-stroke, 28 guineas; Douglas, 1913, T.T., 2-speed, 28 guineas; Entfield, 3hp, twin, 2-speed, clutch, 29 guineas; Hobart, 1915, 2-speed, 2-stroke, 22 guineas; Indian, 1912, 6hp, clutch, cane sidecar, 26 guineas; ditto, 2-speed, cane sidecar, 29 guineas; Ivy, 1915, 2-speed, 2-stroke, 27 guineas; Kerry-Ahingdon, 1912, 3½hp, 2-speed, clutch, cane sidecar, 25 guineas; Ahingdon King Dick, 1911, 4hp, 3-speed, 2 guineas; Martin-J.A.P., 1914, 3½hp, o.h.v., 24 guineas; Moto-scoche, 1913, 2½hp, 15 guineas; Metro, 1916, 2-stroke, 19 guineas; Minerva, 3½hp, 12 guineas; Nestor, 1914, 4hp, 3-speed, clutch, 24 guineas; New Hudson, 1916, 2-speed, 2-stroke, 26 guineas; New Imperial, 1915, 2-speed, 2 guineas; 1916 ditto, 26 guineas; Precision, 1913, 3½hp, 2-speed, clutch, cane sidecar, 2 guineas; Precision, 1914, 4hp, T.T., disc wheels, 24 guineas; Precision, 1914, 3½hp, clutch, 17 guineas; Premier, 1911, 3½hp, disc wheels, 15 guineas; Premier, 1911, 3½hp, 2-speed, countershaft, 29 guineas; Brown, 3½hp, 10 guineas; Rex, 1912, 3½, Philipson, 17 guineas; Rex, 1914, T.T., 6-8hp, clutch, 28 guineas; Scott, 1913, 3½hp, 2-speed, clutch, 2 guineas; Sheffield Minor, 1916, 2-stroke, 22 guineas; Sparkbrook, 1917, 2-speed, 2-stroke, 28 guineas; T.D.C., 1917, 2-stroke, 21 guineas; T.D.C., 1914, 4hp, 3-speed, 24 guineas; Wolf-J.A.P., 1915, 4hp, 3-speed, 2 guineas. Below.

RIDER TROWARD and CO. guarantee any of the above, and invite inquiries regarding these and others. Full list of 150 in stock sent free. All the above machines can be purchased at quarter down, balance in instalments to suit convenience of customer, provided that the machine remains with us till paid for. An excellent opportunity is therefore offered to obtain a good machine now at a moderate price before the end of the war and the consequent rise in prices. Machines so purchased are stored by us free, and are also insured and cleaned till required. Fullest details on application. 31 and 38 High St., Hampstead, D. Phone 3392. 425-347

CARS, DUOCARS, TRI-CARS, TRICYCLES, Etc.

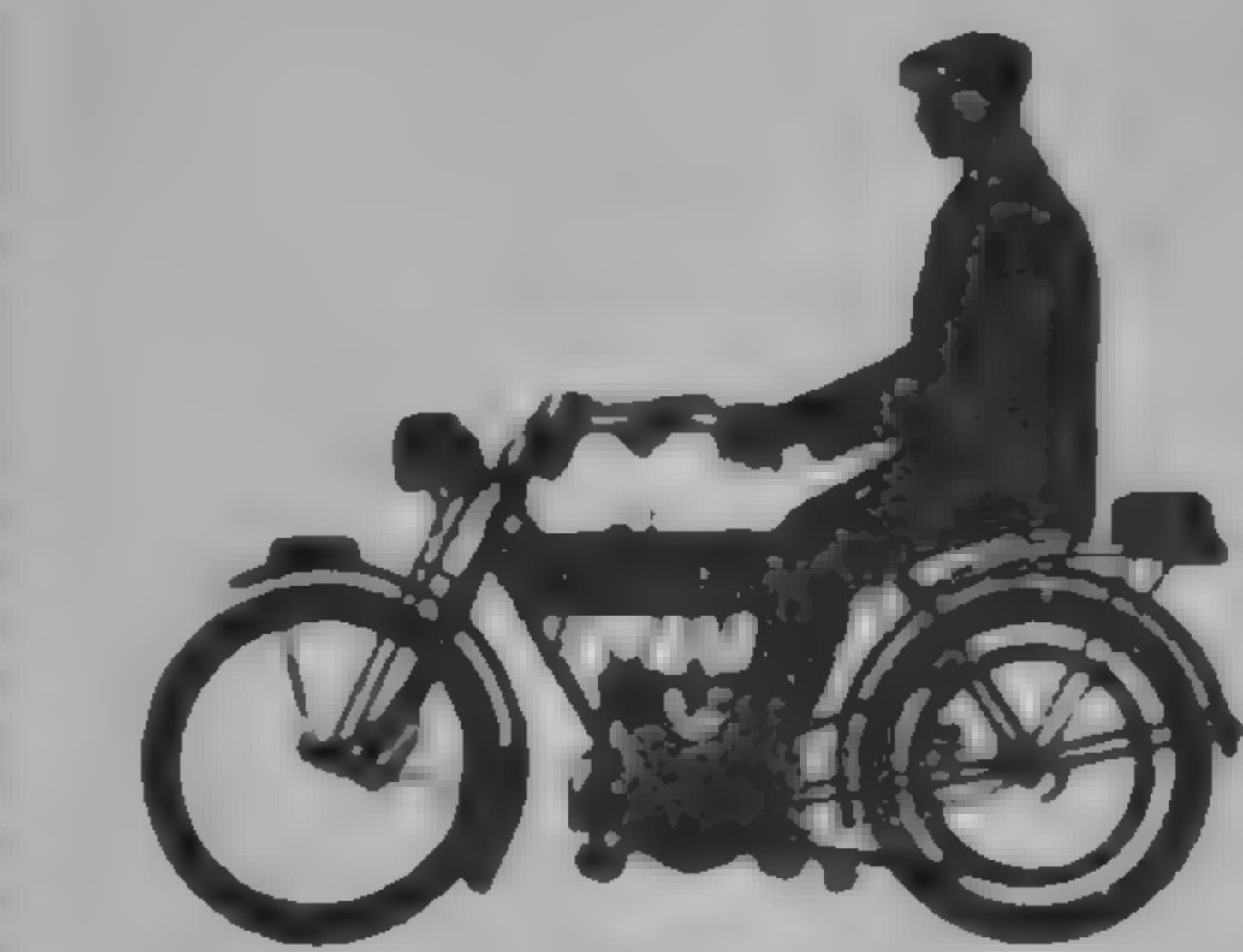
READING Standard carrier, absolutely new, 1916 model, what offers? Can be seen and tried in London. Box No. 1025, c/o "Motor Cycling," zzz-861

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Map of Fifty Miles Round London.—Four miles to the inch. Mounted on cloth, dissected. 2/- net; Mounted on cloth, 1/6 net; postage 1d.; Unmounted, 1/- net; postage 1d.

Secrets of Tune.—Written by the foremost experts on track and road. 6d. net; post free 7½d.

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How to Drive a Light Car or a Cyclecar.—A new Temple Press Manual. A very complete exposition of car driving. 100 plans and illustrations. Price 1/6; post free 1/8½.

The Art of Driving a Motorcycle.—A complete guide to the management of solo machines and sidecar outfits. 1/- net; post free 1/2.

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RIDER TROWARD and CO. have in stock G.N., G.W.K., Bayard, Lagonda, Calthorpe, Morris, Oxford, Morgan and other light cars. Lists free. 11 and 12 High St., Hampstead. Phone, 5392. 425-348

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If you are wanting to do an exchange, send for our list of new and second-hand motorcycles. The North Wales Motor Exchange, Holt St., Wrexham. 222-286

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For Cycles	1/9 tins	6d.
Motorcycles	2/3 "	8d.
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4-seater Cars	8/- "	11d.
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Robbialac Brushes. Extra for postage and packing.

Robbialac Brushes	1in.	1/1	4d.
"	1½in.	1/6	"
"	2in.	2/1	"
"	2½in.	2/6	"
"	3in.	3/3	"

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FOR MOTORCYCLES is second to none. Well-made of Angle Steel, properly finished, complete with couplings, two wheels and tyres. £7.70

We do not supply wooden platform or gas container. Size of framework 5ft. by 3ft. 6in. Any other size made to order.

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Full particulars on application.

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EXTENDED payments: all makes supplied; lowest terms. Service Co., 292 High Holborn, London. 222-611

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REPAIRS by manufacturers. Kenyon and Torrance, 399 Gt. Western St., Rusholme, Manchester, can now undertake magneto repairs accompanied by Class A or II certificate. Some can receive immediate attention, and be returned without delay. 410-708

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72 NUTS, bolts, washers, motorcycle repairs, 6d., post free. Meadows, Bankfield Lane, Southport. 42-6898

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J.A.P. spares for 1 and 8hp, nearly all parts except cylinders, pistons and crankcases; also few 1hp sidele and 3hp twin spares; Renold's and Coventry Elite motorcycle chains, most sizes; many other motorcycle replacement parts; all inquiries answered; would entertain sale of J.A.P. parts in 1 lot. Cook, 14 Wellington Rd., Forest Gate, London, E. 425-a311



All thoroughly economical and reliable, ready for instant inspection, offered at particularly pleasing terms—compose EVANS' stock. Note these few:

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CONNAUGHT, 24 h.p., 2 str. £28 17.8

ENFIELD, 31 h.p., 2-sp., 2-str. 42 gns.

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ENFIELD Combination .. 90 gns.

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JAMES, 0 h.p., 8-sp., kick-start 884 0

NEW IMPERIAL, 2½ h.p., 3-sp. £40 19

NEW IMPERIAL, 3½ h.p., 4-sp. £48 6

NEW IMPERIAL, lady's .. 250 0

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ROVER, 8½ h.p., 8-sp. 280 0

ROVER, 8½ h.p., T.T. .. 282 10

ROVER, 8½ h.p., twin .. 297 10

ROVER, 6 h.p., twin, with cochairman .. 2124 8

CALTHORPE, J.A.P., 3-sp. £38 18

CALTHORPE, 3½ h.p., 3-sp. 34 gns.

CALTHORPE, lady's, 2-speed .. 237 18

CALTHORPE, combination .. 72 gns.

EVANS' allowances on old mounts cannot be equalled, and his deliveries are uniformly prompt. Why not see him to day?

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**"SAFE BIND
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What is safety worth? The Nation's expenditure on insurance of all descriptions reaches a tremendous total, and proves the general appreciation of the necessity for guarding against unforeseen accidents.

If you fit a

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SIMPLEX
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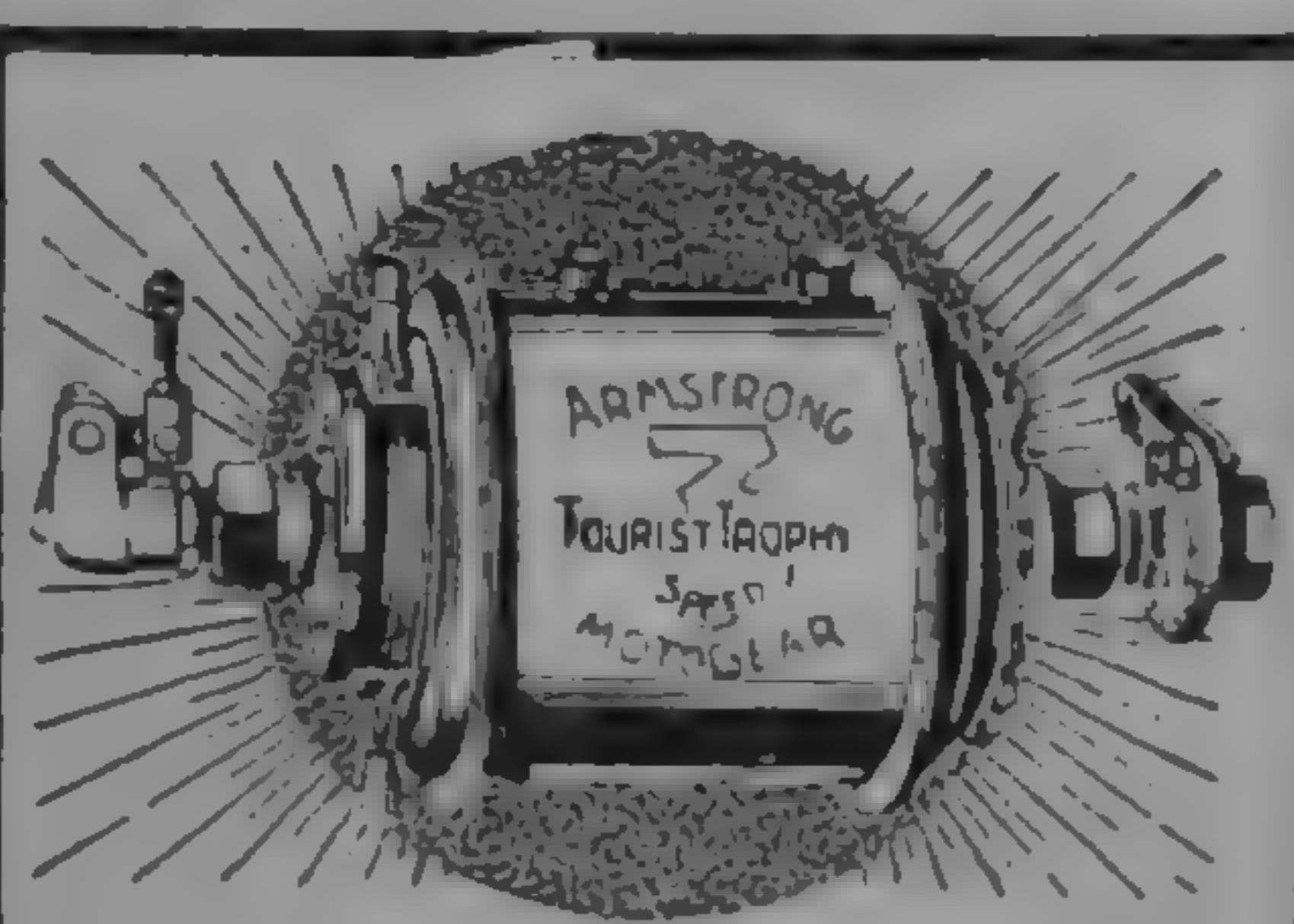
to your belt, you will at trifling trouble and cost effectively guard against vexations and expensive delays on the road. Do it NOW.

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Simplex Adjustable	1/-
Standard Book	1/-
Standard Adjustable	1/3

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Patentees and Manufacturers,
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All Agents stock them.



STURMEY-ARCHER and ARMSTRONG GEARS repaired immediately.

EVERY part for EVERY type of
ARMSTRONG and STURMEY-
ARCHER MOTOR HUB GEARS
actually in stock.

There is no need to have a machine "hung up" on account of gear troubles. Callers can be supplied with any part from stock, or we can despatch by next post. Gears sent for repair can be finished with tested parts—the same as we are supplying to the British & Allied Governments.

IMPORTANT.—When sending wheels or gears see that your name and address is plainly written on two labels. Remove all outside fittings, as clutch and gear controls, push rods, axle nuts, washers, etc. Advise us by post of despatch.

We repair gears thoroughly, and give a road test. Send wheels, clearly labelled, to Hounslow L.S.W. Railway Station.

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Telephone—Hounslow 921.
Telegrams—"Threespeed, Hounslow."

BANCROFTIAN CO. The most reliable and cheapest house in the kingdom.

TYRES. Great purchase of Beldam covers, clear, about half usual prices. Rubber non-skid, 26 by 2, 17s. 6d.; 26 by 2½, 19s. 6d.; 26 by 2½, heavy, 22s. 6d.; 26 by 2½, extra heavy (the heaviest cover made), 28s. 6d.; 26 by 2½, ditto, 31s. 6d.; 26 by 2½, ditto, 33s. 6d.; 26 by 2, steel and rubber, 27s. 6d.; 26 by 2½, 35s. 6d.; 26 by 2½, 37s. 6d.; 26 by 2½, 39s. 6d., heavy enough for car. We have also bankrupt stock of extra heavy 3-ribbed covers, all sizes, to clear, at less than half original prices (cannot advertise name): Stelastic, 26 by 2½, 30s.; Pedley, 26 by 2½, 25s. 9d.; Hutchinson, 3-ribbed, small car, 70s by 5s, 17s. 6d.; 26 by 2½, passenger, 32s. 6d.; 26 by 2½, 28s. 6d.; 26 by 2½, 29s. 6d.; superior non-skid, 26 by 2½, 15s. 6d.; Kempshall, heavy, fresh one from factory, not faulty, 21s. 9d.; high-grade, heavy, ribbed, 26 by 3, weight about 12 lb., 45s., suitable for heaviest machine; wired covers, various makes, 26 by 2½ and 2½, from 16s. 6d.; most of above 2½ will fit 650 rims; all above are clearance but perfect. Before buying tyres, call or write. We have the largest stock in London.

TUBES. Hutchinson clearance, perfect, 26-2, 3s. 6d.; 2½, 4s. 9d.; 2½, 5s. 6d.; 2½, 4s. 9d.; 3, 7s. 6d.

BELTING. Rubber, best make, 5s. in., clearance, 10½d. per ft.; 7s. in., 1s. 6d. per ft.; 1917 guaranteed goods.

MAGNETOS in stock. Bosch, Dixie and Hebo. Repairs and spares at exceptional prices.

WATERPROOF suits, double-breasted, double texture, first-class quality, with seamless trousers, 5s., as sold at 5s.; very best triple texture, with seamless trousers, 7s. 6d., cannot be bought under £3 17s. 6d., nothing better made; cheaper lines in stock; seamless trousers, 14s. 6d.; everything for motorlets; no lists; postage extra on above lines. Bancroftian Co., 64 Bishopsgate, London, E.C. 2. T.A., "Chaikei, London." Tel., No. 9897 London Wall. 222-803

—2½hp ALCYON engine, Bosch magneto, Hobson carburettor, lamps, belt, etc. G. P. Barratt, Gloucester St., S.W. 1. 425-395

—REX tank, 12s. 6d.; Rex cylinder, £1 5s.; Motosacoche engine unit, £3 10s.; lightweight Druid forks, 25s.; sidecar chassis, 25s. Collier's Motorcycles, Deal St., Halifax. 425-313

PATENT AGENTS.

ADVICE and handbook free. King's Patent Agency, Ltd., 163 Queen Victoria St., London. 222 660

REPAIRERS.

—C. R. FOSTER, of Leeds, regrets being unable to undertake any more repairs until further notice, owing to all available plant being engaged on war work. 222-497

—REPAIRS taken in hand on day of receipt; motorcycles thoroughly overhauled; no job too small; no job too large; structural alterations, hub and countershaft gears; machines specially tuned for power or speed. J. M. Gummerson, M.I.M.E., 5 John's Pl., Acton, W. 427-440

—BEST process. Aluminium repairs. No distortion. Cylinder welding and reborning; new pistons (certificates only). Address, Aluminium Repairs Co., 60 Hardman St., Manchester. Tel., 4067 City. 434-178

—PISTON rings, high grade, low prices. Piston Rings, 75 Stanley St., Atherton. 430-6505

—ARMSTRONG gears, all parts for every type actually in stock. Below.

—STURMEY-ARCHER gears, type J. JA and JS, every part in stock. Below.

—STURMEY-ARCHER countershaft gears, every part in stock, no waiting. Douglas layshfts. We repair any of the above gears in six hours with parts as supplied to the British Government and leading manufacturers. Send wheels and parcels to Cromwell Engineering Co., Putney Bridge Rd., (L. and S.W. Railway). 'Phone, Putney 1601. 436-837

—ARMSTRONG and Sturmey gears repaired or parts supplied promptly. The Rotary Jointing Co., Regent St., Warrington. 430-a397

—GENUINE Sturmey-Archer parts. Sturmey-Archer countershaft gear repairs, every part in stock; repairs by gear mechanics only, all parts genuine Sturmey-Archer, no dud parts supplied; also every part in stock for hub gears, J.J.A. and J.S.; all Sturmey-Archer genuine parts, guaranteed. Jones's Garage, Broadway, Muswell Hill, N. 19. 425-306

Stamps not accepted.

Payment for advertisements intended for these columns must be made by POSTAL ORDER, payable to "Temple Press Limited," and crossed "London City & Midland Bank, Ltd." When stamps are sent to make up odd amounts they must be permanently affixed to the Postal Order in the space provided. Postal Orders, Cheques, etc., should be crossed and made payable to "Temple Press Limited."

SECRETS of TUNE

6d. NET.

Post Free, 7½d.

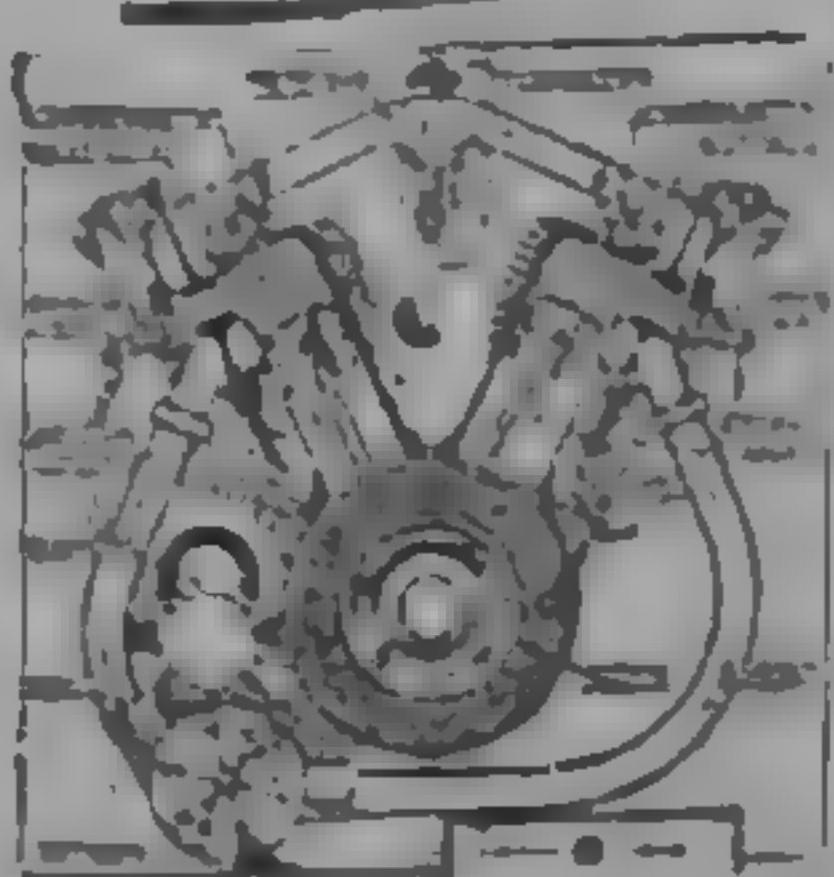
G "Secrets of Tune" is the work of many hands—33 writers having contributed to the book. Every one of these contributors is a prominent performer, either on the track or on the road. "Secrets of Tune" represents the results of their tested experience. Even those motor-cyclists who do not aspire to speed work will find the contents of this book of the greatest interest, as giving an insight into the methods of performers in trials and at Brooklands.



Model of a Twin Cylinder Engine . . .

6d. NET, Post free, 8d.

G "Motor Cycling" model of a twin-cylinder engine is made of two pieces of cardboard. The back portion can be revolved, which shows the two pistons working in eight different positions. In this way the cycle of operations in each cylinder can be followed with ease.



TEMPLE PRESS LTD.,
7-15, Rosebery Ave., E.C. 1.

Wholesale—
E. J. LARBY, LTD.,
30, Paternoster Row, London, E.C. 4

1st January, 1918.

MOTOR CYCLING.

(Supplement vii.)

STURMEY-ARCHER and Armstrong gear repairs a speciality; repairs only by experienced workmen; repairs in 12 hours when necessary. We guarantee you gear and guarantee our work. Give us a trial. Recommended by all the leading firms; testimonials can be seen upon application; all guarantees are given a severe test before we despatch. Remember, we have the parts in stock, no waiting. Jones & Garage, Broadway, Muswell Hill. 425-307

SIDE-CARS, SIDECAR BODIES, TRAILERS, Etc.

SIDECAR, coach-built, Mills-Fullord, splendid condition, £10, privately owned. Apply, Scott's Garage, Shrewton, Wilts. 222-151

PHOENIX sidecars, new and second-hand, also several now, stock soiled, to clear; 100 complete sidecars always in stock, list free. Phoenix Sidecars, 736 Holloway Rd., London. 435-210

PHOENIX coach, wicker, cane bodies, single and tandem models, in all colours, largest selection in the trade, several stock soiled to clear; repairs, repainting and reupholstering a speciality. Actual manufacturers, Phoenix Sidecars, 736 Holloway Rd., London. 435-219

SIDECARS, touring, sporting, lightweights, fit all makes of motorcycles; boods, screens and chassis supplied; few shop-soiled models in stock, bairns; export a speciality. Burbury Sidecar Works, 389 Farm St., Birmingham. 428-308

RIDER TROWARD and CO., 31 and 78 High St., Hampstead, have a representative stock of good second-hand sidecars at moderate prices; state requirements. 425-351

SPARE PARTS.

INDIAN, 1912, 7hp, 2-speed, spring frame, Bosch magneto, being broken up this week. All parts for sale. Below.

B.S.A., 1913, 3½hp, 2-speed, Bosch magneto, being broken up this week. All parts for sale. Below.

SCOTT, 1915, 3½, 2-speed, clutch, Splitdorf magneto, being broken up this week. All parts for sale. Below.

DOUGLAS, 1913, 2½, 2-speed, being broken up this week. All parts for sale. Below.

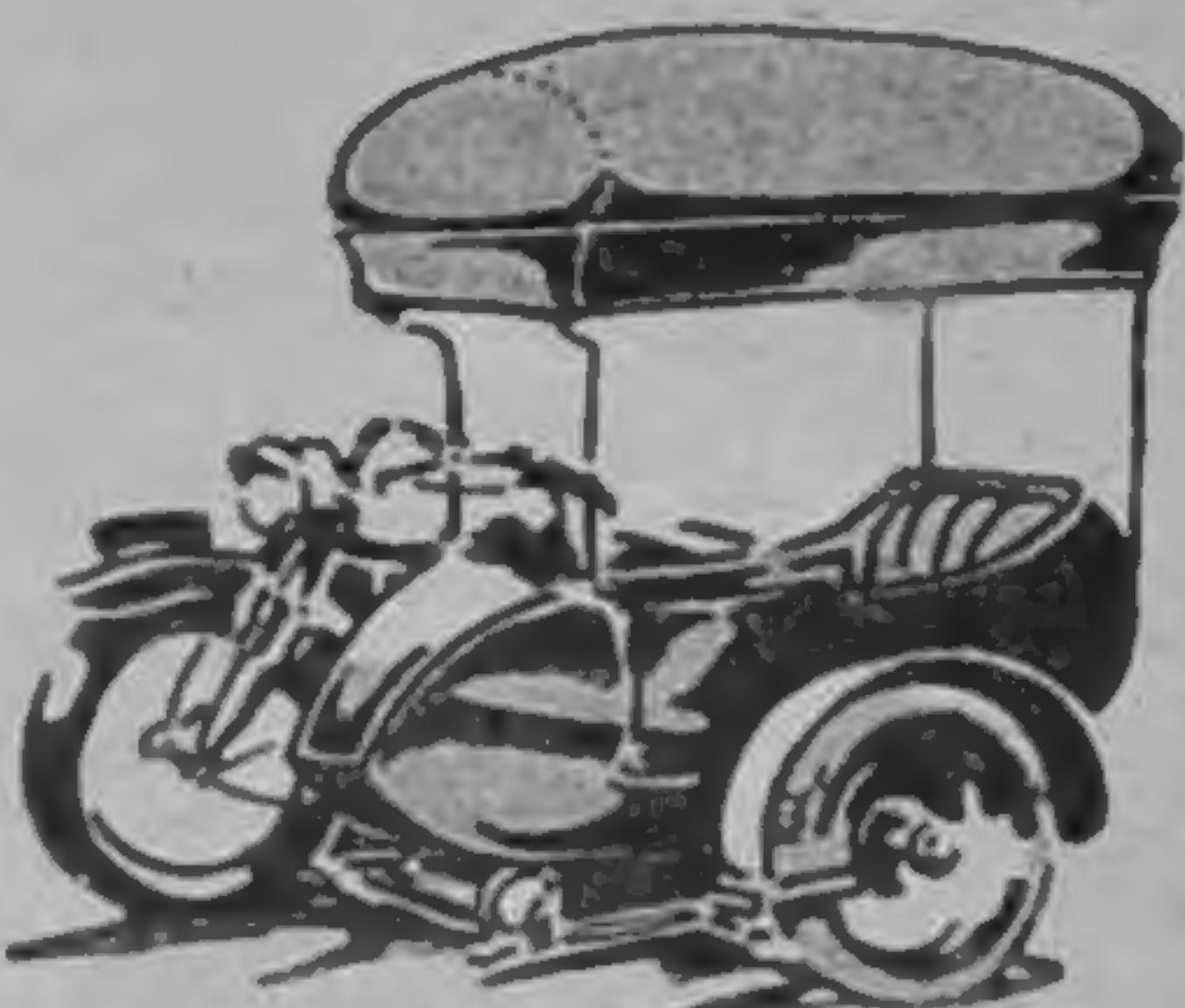
RUDGE-MULTI, 1912, 3½, being broken up this week. All parts for sale. Below.

RIDER TROWARD and CO., 31 and 78 High St., Hampstead, offer the above machines in parts. Engines, magneto and gears sold complete, and will not be split smaller. State requirements. Triumph, Douglas, Sunbeam, A.J.S., Rudge and other valves for sale. 425-352

A.J.S. spares, prompt delivery. A.J.S. Agents, Cyril Williams, B Dept., Chapel Ash Depot, Wolverhampton. 429-c449

HOTSPUR Engineering

Specialists in
**GAS - BAG
ATTACHMENTS**



Trays, Supports, and Trailers
designed to order.

Drawings of every description undertaken. Designs submitted and carried out at the shortest notice.

For further particulars write to

24, BUDGE ROW, CANNON ST.,
Telephone—City 6343. E.C.

**IF IN NEED OF A
Motorcycle
or Combination—
Either for . . .
WAR WORK
or BUSINESS
PURPOSES,
WRITE TO
GODFREY'S, Ltd.**

They can supply you from stock and you can rely on getting value for your money

**GODFREY'S, Ltd.
208, Gt. Portland St.,
LONDON, W. 1.**

Phone—7091 MAYFAIR (2 lines).

A.J.S. spares and repairs. Sole London and district agents, H. Taylor and Co., Ltd., Store St., W.C. 222-98

DOUGLAS parts, 4hp and 2½hp. We have a splendid range of spare parts for all models from 1912. Colmore Depot, 31 Colmore Row, Birmingham. 222-973

HARLEY-DAVIDSON, Royal Enfield and Triumph spare parts. Splendid range in stock. Colmore Depot, 31 Colmore Row, Birmingham. 222-974

SPARE PARTS—WANTED.

THE Editor of "The Commercial Motor" will be pleased to be advised of any stocks of old type or obsolete commercial-vehicle spare parts, as well as of spares for those touring-car models which are commonly used for conversion to delivery vans, etc. Particulars should state types and principal parts available, and these will be included in the Spare Parts Bureau list published regularly in the editorial columns of "The Commercial Motor." Letters should be marked "Spare Part," and addressed to The Editor, "Commercial Motor," 7 Rosebery Ave., E.C. 222-71

SITUATIONS VACANT.

Defence of the Realm Act REGULATION 8 (b).

Under the above regulation, advertisements offering situations with firms whose works are situated within 30 miles of London and whose business consists wholly or mainly in engineering, shipbuilding, or the production of munitions of war, or of substances required for the production thereof, must contain the words—"NO PERSON ENGAGED ON GOVERNMENT WORK OR RESIDENT MORE THAN 10 MILES DISTANT NEED APPLY."

When the advertiser's works are situated more than 30 miles from London all applications must be made through a Labour Exchange, by means of a box number allocated by the Board of Trade. Forms of application may be obtained from any Labour Exchange, or from the offices of this paper. Each advertisement must clearly state that no person already engaged on Government work need apply.

GOOD motorcycle mechanics wanted, good wages and prospects. Rider Troward and Co., 31 and 78 High St., Hampstead. 425-315

PLEASE REFER TO "MOTOR CYCLING" WHEN CORRESPONDING WITH ADVERTISERS.

TYRES AND TUBES.

ELITE RUBBER CO., LTD. We have the following special clearance lines in motorcycle covers, tubes, belts, etc. These goods are quite new. Any article sent on 7 days approval against remittance. A 3s. outfit presented free of charge to all purchasers of covers and tubes as advertised on order exceeding £1.

ELITE. Avon Sunstone, 26 by 2½, 35s., listed 52s. 10d.; tricar, 27s. 6d., listed 40s.; Stonebenge, 21s., listed 29s. 6d.

ELITE. Avon Sunstone, 26 by 2½, 40s., listed 58s. 6d.; tricar, 30s., listed 43s.; Stonehenge, 22s. 6d., listed 32s.

ELITE. Avon Stonehenge, 26 by 2, 19s., listed 27s. 6d.; lightweight studded, 12s. 6d., listed 17s.; 24 by 2½ Stonehenge, 22s. 6d., listed 29s. 6d.

ELITE. Avon heavy 3-ribbed, 550 by 65, 33s., listed 48s.; 28 by 3, 39s. 6d., listed 58s.

ELITE. Clineber Dreadnought, 26 by 2½, 37s. 6d., listed 50s. 3d.; de luxe, 21 by 2, 15s., listed 19s. 6d.; 700 by 80 3-ribbed, oversize for 650 by 65 rims, 44s., listed 56s. 6d.; de luxe, 28 by 2½, 14s. 6d., listed 21s. 6d.

ELITE. Kempshall heavy non-skid, 26 by 2½, 30s., listed 45s.; 26 by 2½, 45s., listed 68s. 6d.; heavy anti-skid, 26 by 2½, 23s. 6d., listed 32s.

ELITE. Kempshall heavy non-skid, 26 by 3 for 650 by 65 rims, 44s., listed 75s.; 26 by 3, 45s., listed 77s. 6d.; 28 by 3½, 37s. 6d., listed 60s.; 28 by 3, 37s. 6d., listed 57s. 6d.

ELITE. Rates No. 1 special heavy, 26 by 2½, 32s. 6d., listed 49s. 6d.; oversize for 2½ rims.

ELITE. Shell heavy grooved, 26 by 2½, 13s. 6d., listed 25s.

ELITE. Pedley extra heavy 3-ribbed, 26 by 2½, 28s. 6d., listed 43s.; 26 by 2½, 28s. 6d., listed 51s.; 26 by 2½ by 2½, 30s., listed 45s.

ELITE. Midland extra heavy ribbed and studded, 26 by 2, 19s., listed 31s.; 26 by 2½, 19s. 6d., listed 33s.; 26 by 2½ by 2½, 22s., listed 35s. 6d.; 26 by 2½, 25s., listed 38s. 6d.

ELITE. Best quality inner tubes, 26 by 2, 26 by 2½, 26 by 2½, 26 by 2½, 5s. 9d. each; 26 by 3, 28 by 2½, 7s. 6d. each; 28 by 3, 9s. 6d.; butted, 1s. 6d. extra.

ELITE. Continental belts, 8ft. 6 ins. by 1 in., 10s. each; 7 ft. 6 ins. by 7/8 in., 7s. 6d. each.

ELITE. Best English make belts, cannot advertise name, 8 ft. by 1 in., 1s. 3d. ft., suitable for all countershaft gear mechanisms; also supplied as 2-piece belts, any length, 7 ft. lengths of 5/8 in., at 11d. ft.

ELITE. Retreading. Special heavy rubber studded, 10s.; heavy, 12s. 6d. Time required about 4 days from receipt of cover. Repairs a speciality.

ELITE RUBBER CO., LTD. 266 Vauxhall Bridge Rd., Victoria, S.W. 1. One minute from Victoria Station. Phone, Victoria 6353. 222-217

COAL-GAS!! A CALL TO ACTION.

TO EVERY MOTORIST, TRADER,
MOTOR CLUB AND ORGANISATION.

This week we devote our advertisement space to an appeal to all the above for united action against further unnecessary restrictions. For the simple reason that there are now practically no joy-riders and that Coal-gas is required by many who are unable to procure Petrol permits; also for the fact that it is desirable in the National interest that more Coal-gas should be manufactured for the explosive products obtained from it, we express our opinion that

THERE SHOULD BE NO GOVERNMENT RESTRICTIONS WHATEVER IN THE USE OF COAL-GAS BY MOTORISTS

Where there is a shortage of Gas in any particular district, the control and distribution can well be left in the hands of the local Gas Committee to apportion it to the most necessitous cases.

Speaking personally, in our own district we believe that Coal-gas is in abundant supply for all and its further use is encouraged.

We appeal to the Motor Trade for instant action, and we suggest that the A.C.U. and other like bodies would be doing service of great utility to all motor users by fighting the cause of the Motorist, who has already been unjustly treated for want of proper combination and opposition to unjustified restrictions. We want that combination now to spring into immediate action. Who will help to lead the way? Write us.

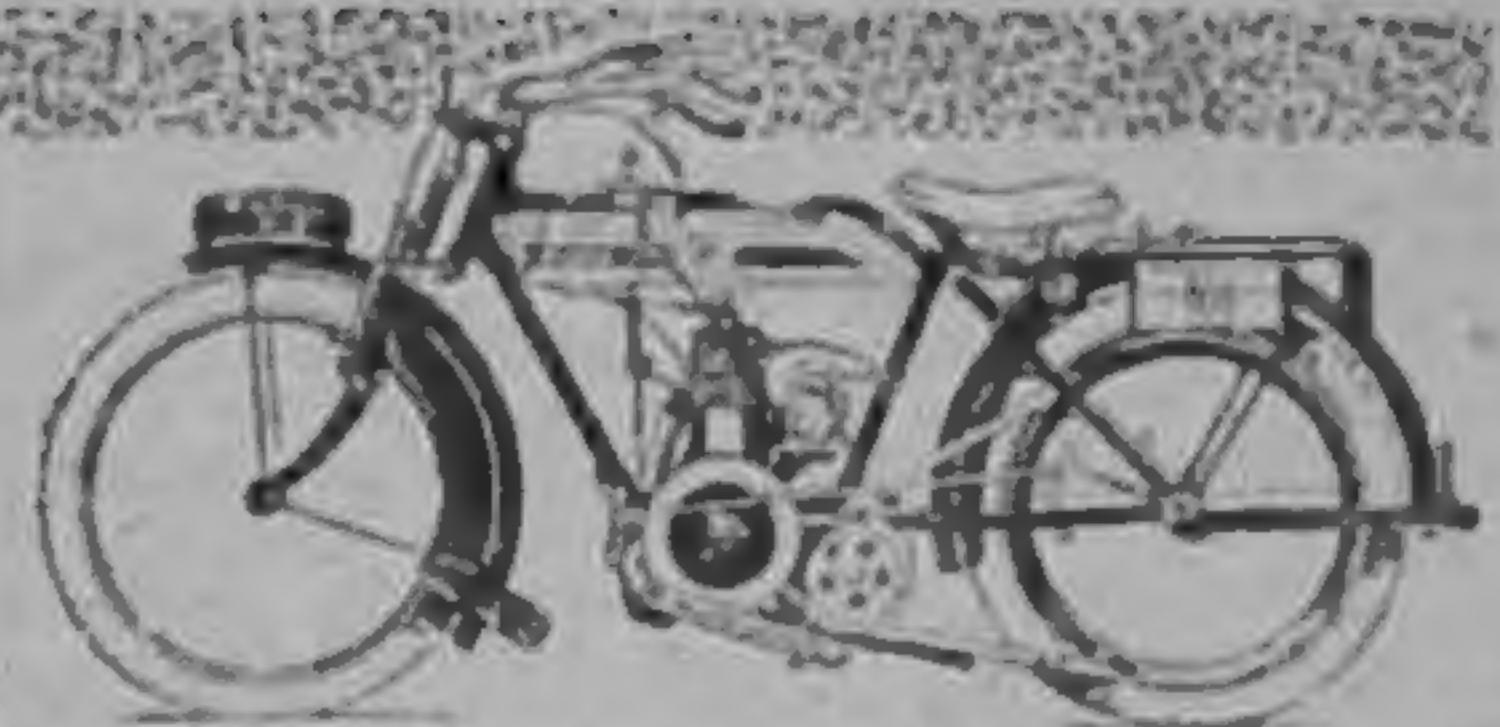
ALEXANDER & CO.,
113-115, Lothian Rd., EDINBURGH.



The Example of Perfection IN 'LIGHTWEIGHT DESIGN.'

Write for Illustrated Booklet showing Latest Improvements.

E. A. RADNALL & CO.,
DARTMOUTH ST., BIRMINGHAM.



EAGLES—N.S.U.

2-Speed Gears with Free Engine.
Acknowledged to be the most perfect of its type upon the market.
With Fixed pulley, £7.7; Adjustable pulley, £7.17.6
Easy to fit. No alteration necessary to Motorcycle.
Supplied for Triumph, B.S.A., Bradbury, Rudge, Precision, Premier, Singer, Rover, and other makes.
Trade enquiries invited. Spares for N.S.U. Motorcycles.

**EAGLES & CO., ACTON HILL WORKS, ACTON,
LONDON, W. 3.**

NEW & SECOND-HAND MOTOR CYCLES. MOTOR CLOTHING • ACCESSORIES •

Cash—Extended Payments—Exchange.
Send for List, stating requirements.

The Service Co
289-93 High Holborn

BRITISH HORN



Weight, 2½ lbs. Length, 10 in.
Height, 6 in. Diam. of front, 6 in. The latest production of a famous British factory.
Made of specially chosen materials, on a scientific basis. Finished in Black Ebony and Brass 27". Short Type, 21". adjustable bracket and diaphragm screw.

Complete Set 70/-

MAGNETO LAMPS.

A new method of obtaining light, sufficient for two lamps, from the extra current produced by magneto, which has been wasted so far. As soon as engine starts, the lamps light. Perfectly simple and foolproof. No trouble in future to get your lamps lit. An accumulator is fitted into box for use when machine is at a standstill.

F.R.S. LAMPS, "Castle" Works,
Pershore Street,
BIRMINGHAM.

—**TYRES.** See Bancroftian advertisement under "Miscellaneous." zzz-8

—**ECONOMIC TYRE CO.** New clearance lines, as below, on approval against remittance.

—**ECONOMIC.** Pedley, 26 by 2½, heavy 3-ribbed covers, 22s. 6d., special oversize for 26 by 2 rims.

—**ECONOMIC.** Avon 3-ribbed, 28 by 3, very heavy. 38s. 6d., listed 57s. 6d.; A Won, 42s. 6d., for American rims.

—**ECONOMIC.** Dreadnought 3-ribbed, 700 by 80, oversize for 650 by 65. 45s., suit heavy combination.

—**ECONOMIC.** Kempshall heavy Anti-skids, 26 by 2½, 21s., listed 38s. 6d.; 26 by 2½, 35s., listed 45s.; 26 by 2½ for 650 by 65. 42s. 6d., listed 52s. 6d.; 700 by 85, cyclecar, 55s., listed 65s.

—**ECONOMIC TYRE CO.** Kempshall square-tread non-skids, 26 by 2½, 30s., listed 48s. 6d.; 26 by 2½ by 2½, 48s. 6d., listed 61s. 6d.; 26 by 2½, cycle rims, 35s., listed 42s. 6d.; 26 by 2½, voillette rims, 57s. 6d., listed 75s.

—**ECONOMIC.** Special parcel of extra-heavy 650 by 65 covers, 25s., listed 50s., not allowed to advertise makers.

—**ECONOMIC TYRE CO.** Continental 26 by 2½ wired, oversize for 26 by 2, 7s. 6d., pair 12s. 6d.; approval against remittance.

—**ECONOMIC.** Belts, best English make, 2-piece 1 in., per ft. 1s. 3d., 3d. 1s.

—**ECONOMIC TYRE CO.** Clincher tubes, 26 by 2½, 6s. 6d.; 26 by 2½ by 2½, 6s. 6d.; Continental, 26 by 2½, 6s. 6d.; 650 by 65, 7s. 6d.; Kempshall, 700 by 80, cycle valve, 10s.; car valve, 12s. 6d.

—**ECONOMIC TYRE CO.**, 137a Lowisham High Rd., New Cross. Phone, New Cross 1393. 425-305

TUITION.

—**MOTOR** instruction. At the British School of Motoring you can learn motor mechanism, driving and repairs, for the lowest inclusive fee in England. Apply for prospectus. Secretary, British School of Motoring, Ltd., 5 Coventry St., Piccadilly Circus, London, W. 1. zzz-201

WHEEL DISCS.

—**PHOENIX** manufacture and can supply from stock steel discs to fit all make motorcycle and sidecar wheels, enamelled, 15s. per wheel, plus 5 per cent. Phoenix Sidecars, 736 Holloway Rd., London. 435-212

WINDSCREENS.

—**PHOENIX** manufacture hoods from 35s.; screens, 19s. 6d.; immediate deliveries; special list. Phoenix, 736 Holloway Rd., N. 435-241

WANTED.

—**WANTED**, motorcycles, spot cash. Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). 426-695

—**SEND** your motorcycle to Palmer's Garage, Tooting, Wimbledon Station; cash offer will be telegraphed immediately on receipt of machine. Machine can be included in fortnightly auction without charge if offer not accepted. Reserve price may be fixed. Sole address, Palmer's Garage and Auction Rooms, 183-199 High St., Tooting. zzz-715

—**100 MOTORCYCLES** wanted, spot cash paid; bring or send. Palmer's Garage, Tooting. zzz-916

—**RIDER TROWARD and CO.**, 31 and 58 High St., Hampstead, are open to purchase any modern motorcycle, condition immaterial. F.N., Scott and Indian machines specially required; machines sold on commission at 5 per cent., no sale, no charge; advertised, garaged, cleaned and insured free. Explanatory leaflet gratis. 425-316

—**GOOD** combination wanted, high power, with chain drive preferred. Bunting's, Mason's Ave., Harrow. 425-310

—**WANTED** for cash, second-hand Morgans, Enfields, A.J.S., and Sunbeam combinations. Collier's, Deal St., Halifax. 425-311

NOTICE.

Owing to postal delays and irregularities, it is advisable to post advertisements early on Tuesdays so as to ensure, as far as possible, that they reach us by the FIRST POST on Wednesdays.

Lately several advertisements have been received too late for inclusion, although despatched on Tuesdays.

BURBERRYS' SALE 1917 Suits and Topcoats. MEANS ECONOMY.

Starts 1st January.

Motorcycle Burberrys lined tweed or flannel.

Usual Price, 4 and 5 Guineas.

Sale Price, 55s. & 63s.

Orbitor Topcoats. Light weight weatherproofs in wool coatings.

Usual Price 5 Guineas.

Sale Price 62s.

The Busberry. World-renowned weatherproof.

Usual Price 4 Guineas.

Sale Price 63s.

Lounge Suits. Smartly cut and splendidly finished.

Usual Price 7 Guineas.

Sale Price 73s.

Write for Sale List of Bargains.

BURBERRYS, Haymarket, LONDON, S.W. 1



The Light Car and Cyclecar

EVERY
MONDAY,
One Penny.

Try a new medium
for disposing of your
old Motorcycle—

MotorCycling

1—"Motor Cycling" is the only journal that reaches the cyclist, linked as it is with "Cycling," the only cycling paper. A Motor-cyclist must be a cyclist first.

2-The small advts. in "Motor Cycling" are set in clear type, and an announcement is thus easily found.

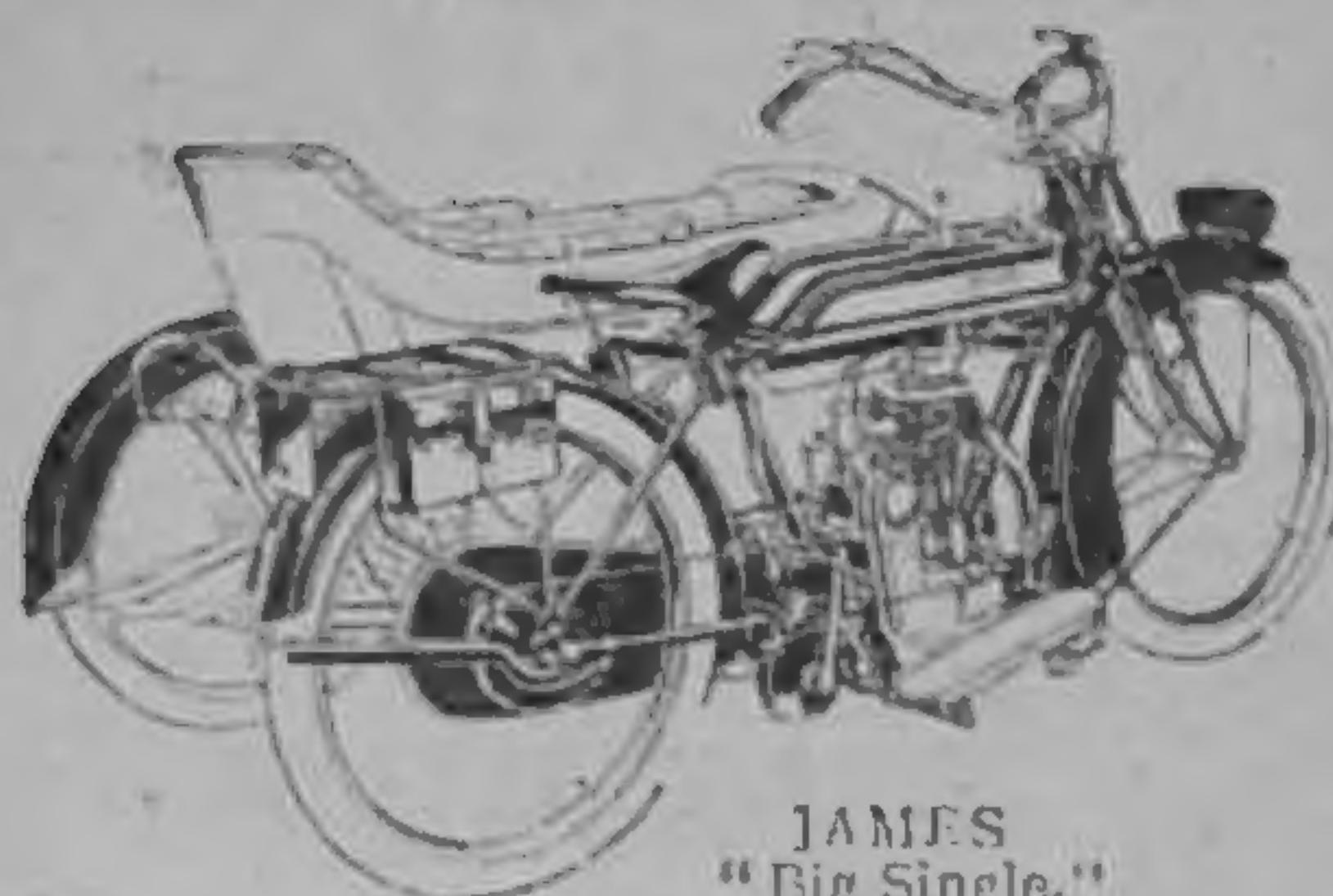
3—"Motor Cycling" is the only journal the readers of which are all motor-cyclists, or those contemplating the purchase of a motor-bicycle. If you have a second-hand motor-bicycle, you do not want to advertise in a cyclecar paper or a motor paper—therefore, advertise in one which is read by motor-cyclists only, and does not deal with cyclecar topics as well—viz.:

"MOTOR CYCLING."

1st January, 1918.

MOTOR CYCLING.

If you desire—



JAMES
"Big Single."

the best that the sport can yield when you resume or commence motor cycling after the war — give a thought now to the JAMES.

keep riders and watch the production of the JAMES throughout in our own works. This is the complete range:

No. 6. 4½ h.p. "Big Single," 3-sp., for Sidecar	£70 0s.
or complete with JAMES-CANOELET Sidecar, extra	£20 0s.
No. 7. 3½ h.p. Twin, 3-sp., with Hand-controlled Clutch, Solo	£79 0s.
No. 8. 2½ h.p., 2-st., 2-sp., Lightweight	£50 0s.
No. 9. 5-5 h.p. Twin, 3 sp., Sidecar Model	£84 0s.

Ask for JAMES Catalogue and special details of the No. 9.

The JAMES CYCLE CO., Ltd.,
Greet, Birmingham.

BIRMINGHAM—Broad Street Corner,
LONDON—22, Holborn Viaduct, E.C.1.



R.H.S.

The Art of Driving a Motorcycle

A complete guide to the management of solo machines and sidecar outfits on the road, from elementary advice on learning to drive to the niceties of driving and the highly-skilled use of the machine. An indispensable handbook for every motorcyclist. Written and illustrated by the staff of "Motor Cycling." 2nd edition. 1s. net; post free 1s. 2d.



TEMPLE PRESS LTD., 7-15, Rosebery Av., E.C.1.
Wholesale—E. J. LARBY, Ltd., 30, Paternoster Row, E.C. 4.



The First
and last
word on lubrication.

WAKEFIELD

Castrol
MOTOR OIL

Historic successes
on Castrol prove
superiority.

C. C. WAKEFIELD & Co., Ltd.
Wakefield House,
Cheapside, LONDON, E.C.2.

"Motor Cycling," 1st Jan., 1919

Motor Cycling



The pleasant road to Convalescence

NOTHING more speedily conduces to the complete restoration of the boys' health than a jolly jaunt through the lanes and roads of the old country — and where the surface is rough the resiliency of Avon Tyres ensures comfortable smooth travelling.

Equip your Motorcycles, Volunteer Cars, and Light Delivery Vans with AVON SUNSTONES, and heavy Motor Lorries with AVON SOLID BAND TYRES.

The Avon
India Rubber Co., Ltd.
19, Newman Street,
Oxford Street,
London, W. 1.

AVON
TYRES

Works :
Melksham and
Bradford-on-Avon,
Wilts.

DEPOTS—MANCHESTER: 38, King Street West. GLASGOW: 55, Queen Street. BIRMINGHAM: Broad Street Chambers.
BRISTOL: 119, Victoria Street. NEWCASTLE: 5, Gallowgate. NOTTINGHAM: Mansfield Road. ABERDEEN: 106,
Union Street. SWANSEA: Fisher Street. DUBLIN: 119, St. Stephen's Green, West. PARIS: 88, Avenue des Ternes.
Stockists everywhere.